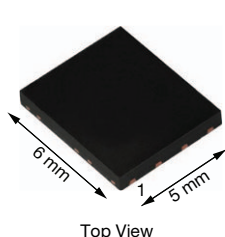


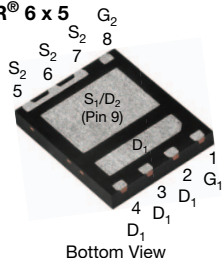
## Dual N-Channel 30 V (D-S) MOSFETs

### PRODUCT SUMMARY

|           | V <sub>DS</sub> (V) | R <sub>DS(on)</sub> (Ω) (MAX.)     | I <sub>D</sub> (A) <sup>a</sup> | Q <sub>g</sub> (TYP.) |
|-----------|---------------------|------------------------------------|---------------------------------|-----------------------|
| Channel-1 | 30                  | 0.00640 at V <sub>GS</sub> = 10 V  | 16 <sup>a</sup>                 | 7.2 nC                |
|           |                     | 0.01000 at V <sub>GS</sub> = 4.5 V | 16 <sup>a</sup>                 |                       |
| Channel-2 | 30                  | 0.00130 at V <sub>GS</sub> = 10 V  | 40 <sup>a</sup>                 | 45 nC                 |
|           |                     | 0.00175 at V <sub>GS</sub> = 4.5 V | 40 <sup>a</sup>                 |                       |

**PowerPAIR® 6 x 5**


Top View



Bottom View

### Ordering Information:

SiZ916DT-T1-GE3 (lead (Pb)-free and halogen-free)

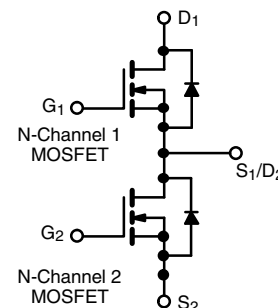
### FEATURES

- TrenchFET® Gen IV power MOSFETs
- 100 % R<sub>g</sub> and UIS tested
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### APPLICATIONS

- CPU core power
- Computer/server peripherals
- Synchronous buck converter
- POL
- Telecom DC/DC



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C, unless otherwise noted)

| PARAMETER                                                    |                        | SYMBOL                            | CHANNEL-1             | CHANNEL-2             | UNIT |    |
|--------------------------------------------------------------|------------------------|-----------------------------------|-----------------------|-----------------------|------|----|
| Drain-Source Voltage                                         |                        | V <sub>DS</sub>                   | 30                    |                       | V    |    |
| Gate-Source Voltage                                          |                        | V <sub>GS</sub>                   | +20, -16              |                       |      |    |
| Continuous Drain Current (T <sub>J</sub> = 150 °C)           | T <sub>C</sub> = 25 °C | I <sub>D</sub>                    | 16 <sup>a</sup>       | 40 <sup>a</sup>       | A    |    |
|                                                              | T <sub>C</sub> = 70 °C |                                   | 16 <sup>a</sup>       | 40 <sup>a</sup>       |      |    |
|                                                              | T <sub>A</sub> = 25 °C |                                   | 16 <sup>a, b, c</sup> | 40 <sup>a, b, c</sup> |      |    |
|                                                              | T <sub>A</sub> = 70 °C |                                   | 15.5 <sup>b, c</sup>  | 38.8 <sup>b, c</sup>  |      |    |
| Pulsed Drain Current (t = 300 μs)                            |                        | I <sub>DM</sub>                   | 80                    | 100                   |      | mJ |
| Continuous Source Drain Diode Current                        | T <sub>C</sub> = 25 °C | I <sub>S</sub>                    | 19                    | 28                    |      |    |
|                                                              | T <sub>A</sub> = 25 °C |                                   | 3.25 <sup>b, c</sup>  | 4.3 <sup>b, c</sup>   |      |    |
| Single Pulse Avalanche Current                               | L = 0.1 mH             | I <sub>AS</sub>                   | 10                    | 15                    |      |    |
| Single Pulse Avalanche Energy                                |                        | E <sub>AS</sub>                   | 5                     | 11.25                 |      |    |
| Maximum Power Dissipation                                    | T <sub>C</sub> = 25 °C | P <sub>D</sub>                    | 22.7                  | 100                   | °C   |    |
|                                                              | T <sub>C</sub> = 70 °C |                                   | 14.5                  | 64                    |      |    |
|                                                              | T <sub>A</sub> = 25 °C |                                   | 3.9 <sup>b, c</sup>   | 5.2 <sup>b, c</sup>   |      |    |
|                                                              | T <sub>A</sub> = 70 °C |                                   | 2.5 <sup>b, c</sup>   | 3.3 <sup>b, c</sup>   |      |    |
| Operating Junction and Storage Temperature Range             |                        | T <sub>J</sub> , T <sub>stg</sub> | -55 to 150            |                       | °C   |    |
| Soldering Recommendations (Peak Temperature) <sup>d, e</sup> |                        |                                   | 260                   |                       |      |    |

### THERMAL RESISTANCE RATINGS

| PARAMETER                                   | SYMBOL            | CHANNEL-1 |      | CHANNEL-2 |      | UNIT |
|---------------------------------------------|-------------------|-----------|------|-----------|------|------|
|                                             |                   | TYP.      | MAX. | TYP.      | MAX. |      |
| Maximum Junction-to-Ambient <sup>b, f</sup> | R <sub>thJA</sub> | 25        | 32   | 19        | 24   | °C/W |
| Maximum Junction-to-Case (Drain)            | R <sub>thJC</sub> | 4.4       | 5.5  | 1         | 1.25 |      |

### Notes

- Package limited.
- Surface mounted on 1" x 1" FR4 board.
- t = 10 s.
- See solder profile ([www.vishay.com/doc?73257](http://www.vishay.com/doc?73257)). The PowerPAIR is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.
- Rework conditions: manual soldering with a soldering iron is not recommended for leadless components.
- Maximum under steady state conditions is 62 °C/W for channel-1 and 55 °C/W for channel-2.
- T<sub>C</sub> = 25 °C.



| SPECIFICATIONS (T <sub>J</sub> = 25 °C, unless otherwise noted)                     |                                      |                                                                                                                                                    |                                                                                     |                                                                       |         |         |       |    |
|-------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------|---------|-------|----|
| PARAMETER                                                                           | SYMBOL                               | TEST CONDITIONS                                                                                                                                    |                                                                                     | MIN.                                                                  | TYP.    | MAX.    | UNIT  |    |
| Static                                                                              |                                      |                                                                                                                                                    |                                                                                     |                                                                       |         |         |       |    |
| Drain-Source Breakdown Voltage                                                      | V <sub>DS</sub>                      | V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA                                                                                                     | Ch-1                                                                                | 30                                                                    | -       | -       | V     |    |
|                                                                                     |                                      | V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA                                                                                                     | Ch-2                                                                                | 30                                                                    | -       | -       |       |    |
| V <sub>DS</sub> Temperature Coefficient                                             | ΔV <sub>DS</sub> /T <sub>J</sub>     | I <sub>D</sub> = 250 μA                                                                                                                            | Ch-1                                                                                | -                                                                     | 17      | -       | mV/°C |    |
|                                                                                     |                                      | I <sub>D</sub> = 250 μA                                                                                                                            | Ch-2                                                                                | -                                                                     | 8.8     | -       |       |    |
| V <sub>GS(th)</sub> Temperature Coefficient                                         | ΔV <sub>GS(th)</sub> /T <sub>J</sub> | I <sub>D</sub> = 250 μA                                                                                                                            | Ch-1                                                                                | -                                                                     | -5      | -       | mV/°C |    |
|                                                                                     |                                      | I <sub>D</sub> = 250 μA                                                                                                                            | Ch-2                                                                                | -                                                                     | -5.9    | -       |       |    |
| Gate Threshold Voltage                                                              | V <sub>GS(th)</sub>                  | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA                                                                                        | Ch-1                                                                                | 1.2                                                                   | -       | 2.4     | V     |    |
|                                                                                     |                                      | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA                                                                                        | Ch-2                                                                                | 1                                                                     | -       | 2.4     |       |    |
| Gate Source Leakage                                                                 | I <sub>GSS</sub>                     | V <sub>DS</sub> = 0 V, V <sub>GS</sub> = +20 V, -14 V                                                                                              | Ch-1                                                                                | -                                                                     | -       | ± 100   | nA    |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-2                                                                                | -                                                                     | -       | ± 100   |       |    |
| Zero Gate Voltage Drain Current                                                     | I <sub>DSS</sub>                     | V = 30 V, V <sub>DS</sub> = 0 V                                                                                                                    | Ch-1                                                                                | -                                                                     | -       | 1       | μA    |    |
|                                                                                     |                                      | V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V                                                                                                      | Ch-2                                                                                | -                                                                     | -       | 1       |       |    |
|                                                                                     |                                      | V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C                                                                              | Ch-1                                                                                | -                                                                     | -       | 5       |       |    |
|                                                                                     |                                      | V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C                                                                              | Ch-2                                                                                | -                                                                     | -       | 5       |       |    |
| On-State Drain Current <sup>a</sup>                                                 | I <sub>D(on)</sub>                   | V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V                                                                                                      | Ch-1                                                                                | 20                                                                    | -       | -       | A     |    |
|                                                                                     |                                      | V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V                                                                                                      | Ch-2                                                                                | 25                                                                    | -       | -       |       |    |
| Drain-Source On-State Resistance <sup>a</sup>                                       | R <sub>DS(on)</sub>                  | V <sub>GS</sub> = 10 V, I <sub>D</sub> = 19 A                                                                                                      | Ch-1                                                                                | -                                                                     | 0.00530 | 0.00640 | Ω     |    |
|                                                                                     |                                      | V <sub>GS</sub> = 10 V, I <sub>D</sub> = 20 A                                                                                                      | Ch-2                                                                                | -                                                                     | 0.00105 | 0.00130 |       |    |
|                                                                                     |                                      | V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 15 A                                                                                                     | Ch-1                                                                                | -                                                                     | 0.00800 | 0.01000 |       |    |
|                                                                                     |                                      | V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 20 A                                                                                                     | Ch-2                                                                                | -                                                                     | 0.00140 | 0.00175 |       |    |
| Forward Transconductance <sup>a</sup>                                               | g <sub>fs</sub>                      | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 19 A                                                                                                      | Ch-1                                                                                | -                                                                     | 55      | -       | S     |    |
|                                                                                     |                                      | V <sub>DS</sub> = 10 V, I <sub>D</sub> = 20 A                                                                                                      | Ch-2                                                                                | -                                                                     | 116     | -       |       |    |
| Dynamic <sup>b</sup>                                                                |                                      |                                                                                                                                                    |                                                                                     |                                                                       |         |         |       |    |
| Input Capacitance                                                                   | C <sub>iss</sub>                     | Channel-1<br>V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V, f = 1 MHz<br><br>Channel-2<br>V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V, f = 1 MHz | Ch-1                                                                                | -                                                                     | 1208    | -       | pF    |    |
| Output Capacitance                                                                  | C <sub>oss</sub>                     |                                                                                                                                                    | Ch-2                                                                                | -                                                                     | 8082    | -       |       |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-1                                                                                | -                                                                     | 375     | -       |       |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-2                                                                                | -                                                                     | 1961    | -       |       |    |
| Reverse Transfer Capacitance                                                        | C <sub>rss</sub>                     |                                                                                                                                                    | Ch-1                                                                                | -                                                                     | 30      | -       | pF    |    |
| C <sub>r</sub> /C <sub>i</sub> Ratio                                                |                                      |                                                                                                                                                    | Ch-2                                                                                | -                                                                     | 227     | -       |       |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-1                                                                                | -                                                                     | 0.025   | 0.050   | -     |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-2                                                                                | -                                                                     | 0.028   | 0.056   | -     |    |
|                                                                                     |                                      | Total Gate Charge                                                                                                                                  | Q <sub>g</sub>                                                                      | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 20 A | Ch-1    | -       | 17    | 26 |
| V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 20 A               | Ch-2                                 |                                                                                                                                                    |                                                                                     | -                                                                     | 106     | 160     |       |    |
| Channel-1<br>V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 20 A | Ch-1                                 |                                                                                                                                                    | -                                                                                   | 7.2                                                                   | 11      |         |       |    |
|                                                                                     | Ch-2                                 |                                                                                                                                                    | -                                                                                   | 45                                                                    | 68      |         |       |    |
|                                                                                     | Gate-Source Charge                   |                                                                                                                                                    | Q <sub>gs</sub>                                                                     | Ch-1                                                                  | -       | 3.6     | -     |    |
|                                                                                     |                                      |                                                                                                                                                    |                                                                                     | Ch-2                                                                  | -       | 23.2    | -     |    |
| Gate-Drain Charge                                                                   | Q <sub>gd</sub>                      |                                                                                                                                                    | Channel-2<br>V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 20 A | Ch-1                                                                  | -       | 0.94    | -     |    |
|                                                                                     |                                      |                                                                                                                                                    |                                                                                     | Ch-2                                                                  | -       | 5       | -     |    |
| Output Charge                                                                       | Q <sub>oss</sub>                     | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V                                                                                                      | Ch-1                                                                                | -                                                                     | 10      | -       |       |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-2                                                                                | -                                                                     | 57.5    | -       |       |    |
| Gate Resistance                                                                     | R <sub>g</sub>                       | f = 1 MHz                                                                                                                                          | Ch-1                                                                                | 0.5                                                                   | 2.5     | 5       | Ω     |    |
|                                                                                     |                                      |                                                                                                                                                    | Ch-2                                                                                | 0.2                                                                   | 1       | 2       |       |    |

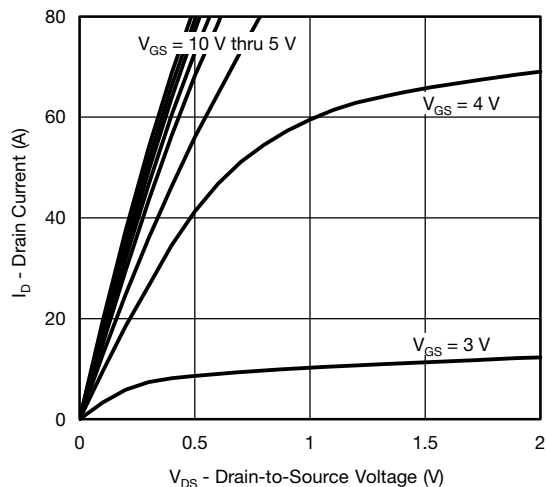
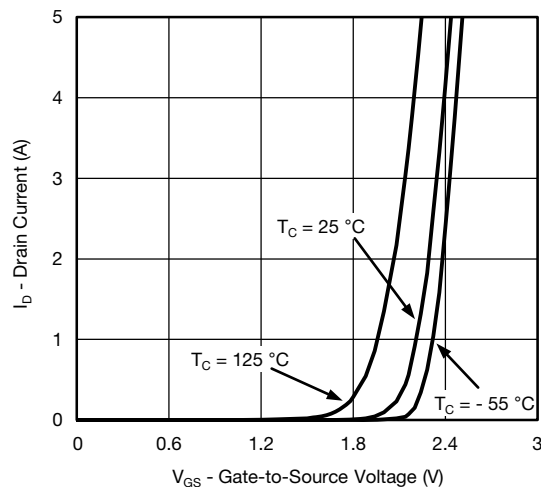
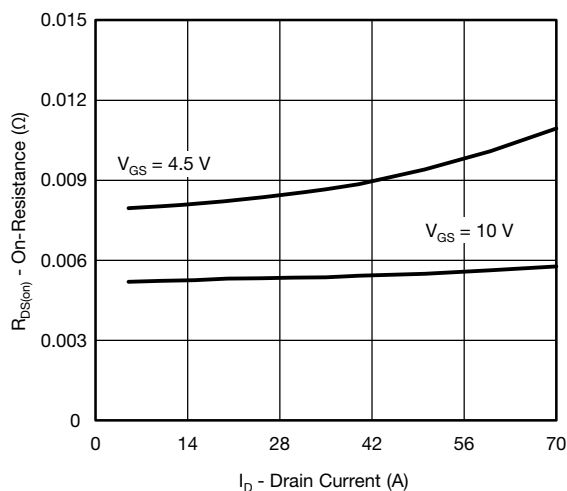
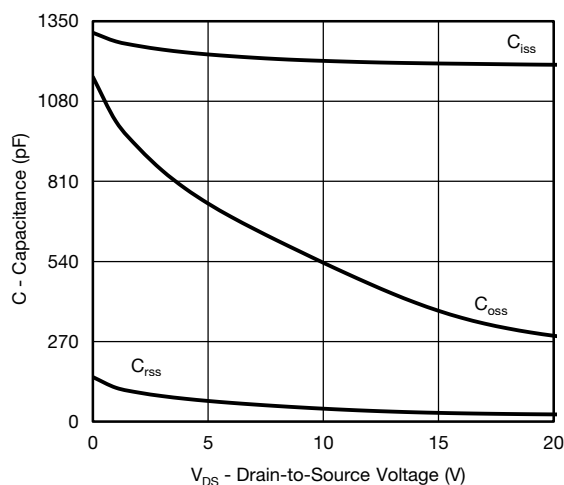
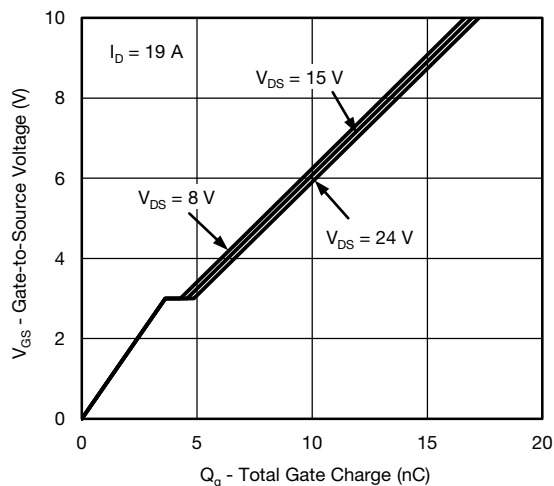
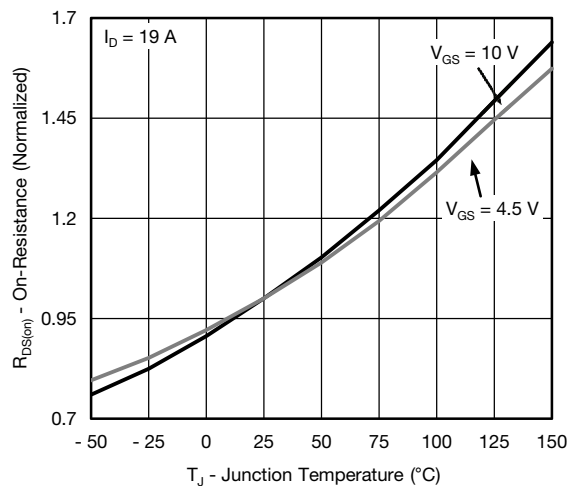


| SPECIFICATIONS (T <sub>J</sub> = 25 °C, unless otherwise noted) |                     |                                                                                                                                      |                                                                              |      |      |      |      |    |
|-----------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------|------|------|------|----|
| PARAMETER                                                       | SYMBOL              | TEST CONDITIONS                                                                                                                      |                                                                              | MIN. | TYP. | MAX. | UNIT |    |
| Dynamic <sup>b</sup>                                            |                     |                                                                                                                                      |                                                                              |      |      |      |      |    |
| Turn-On Delay Time                                              | t <sub>d(on)</sub>  | Channel-1<br>V <sub>DD</sub> = 15 V, R <sub>L</sub> = 1.5 Ω<br>I <sub>D</sub> ≅ 10 A, V <sub>GEN</sub> = 4.5 V, R <sub>g</sub> = 1 Ω | Ch-1                                                                         | -    | 16   | 24   | ns   |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 36   | 54   |      |    |
| Rise Time                                                       | t <sub>r</sub>      |                                                                                                                                      | Ch-1                                                                         | -    | 11   | 20   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 55   | 83   |      |    |
| Turn-Off Delay Time                                             | t <sub>d(off)</sub> | Channel-2<br>V <sub>DD</sub> = 15 V, R <sub>L</sub> = 1.5 Ω<br>I <sub>D</sub> ≅ 10 A, V <sub>GEN</sub> = 4.5 V, R <sub>g</sub> = 1 Ω | Ch-1                                                                         | -    | 15   | 23   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 44   | 66   |      |    |
| Fall Time                                                       | t <sub>f</sub>      |                                                                                                                                      | Ch-1                                                                         | -    | 5    | 10   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 8    | 16   |      |    |
| Turn-On Delay Time                                              | t <sub>d(on)</sub>  | Channel-1<br>V <sub>DD</sub> = 15 V, R <sub>L</sub> = 1.5 Ω<br>I <sub>D</sub> ≅ 10 A, V <sub>GEN</sub> = 10 V, R <sub>g</sub> = 1 Ω  | Ch-1                                                                         | -    | 10   | 20   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 18   | 27   |      |    |
| Rise Time                                                       | t <sub>r</sub>      |                                                                                                                                      | Ch-1                                                                         | -    | 10   | 20   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 10   | 20   |      |    |
| Turn-Off Delay Time                                             | t <sub>d(off)</sub> | Channel-2<br>V <sub>DD</sub> = 15 V, R <sub>L</sub> = 1.5 Ω<br>I <sub>D</sub> ≅ 10 A, V <sub>GEN</sub> = 10 V, R <sub>g</sub> = 1 Ω  | Ch-1                                                                         | -    | 20   | 30   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 45   | 68   |      |    |
| Fall Time                                                       | t <sub>f</sub>      |                                                                                                                                      | Ch-1                                                                         | -    | 5    | 10   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 8    | 16   |      |    |
| Drain-Source Body Diode Characteristics                         |                     |                                                                                                                                      |                                                                              |      |      |      |      |    |
| Continuous Source-Drain Diode Current                           | I <sub>S</sub>      | T <sub>C</sub> = 25 °C                                                                                                               | Ch-1                                                                         | -    | -    | 40   | A    |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | -    | 40   |      |    |
| Pulse Diode Forward Current <sup>a</sup>                        | I <sub>SM</sub>     |                                                                                                                                      | Ch-1                                                                         | -    | -    | 80   |      |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | -    | 100  |      |    |
| Body Diode Voltage                                              | V <sub>SD</sub>     | I <sub>S</sub> = 10 A, V <sub>GS</sub> = 0 V                                                                                         | Ch-1                                                                         | -    | 0.8  | 1.2  | V    |    |
|                                                                 |                     | I <sub>S</sub> = 10 A, V <sub>GS</sub> = 0 V                                                                                         | Ch-2                                                                         | -    | 0.8  | 1.2  |      |    |
| Body Diode Reverse Recovery Time                                | t <sub>rr</sub>     | Channel-1<br>I <sub>F</sub> = 10 A, dI/dt = 100 A/μs, T <sub>J</sub> = 25 °C                                                         | Ch-1                                                                         | -    | 15   | 23   | ns   |    |
|                                                                 |                     |                                                                                                                                      | Ch-2                                                                         | -    | 65   | 98   |      |    |
| Body Diode Reverse Recovery Charge                              | Q <sub>rr</sub>     |                                                                                                                                      | Channel-2<br>I <sub>F</sub> = 10 A, dI/dt = 100 A/μs, T <sub>J</sub> = 25 °C | Ch-1 | -    | 4    | 8    | nC |
|                                                                 |                     |                                                                                                                                      |                                                                              | Ch-2 | -    | 52   | 78   |    |
| Reverse Recovery Fall Time                                      | t <sub>a</sub>      | Channel-2<br>I <sub>F</sub> = 10 A, dI/dt = 100 A/μs, T <sub>J</sub> = 25 °C                                                         |                                                                              | Ch-1 | -    | 9    | -    | ns |
|                                                                 |                     |                                                                                                                                      |                                                                              | Ch-2 | -    | 30   | -    |    |
| Reverse Recovery Rise Time                                      | t <sub>b</sub>      |                                                                                                                                      |                                                                              | Ch-1 | -    | 6    | -    |    |
|                                                                 |                     |                                                                                                                                      |                                                                              | Ch-2 | -    | 22   | -    |    |

**Notes**

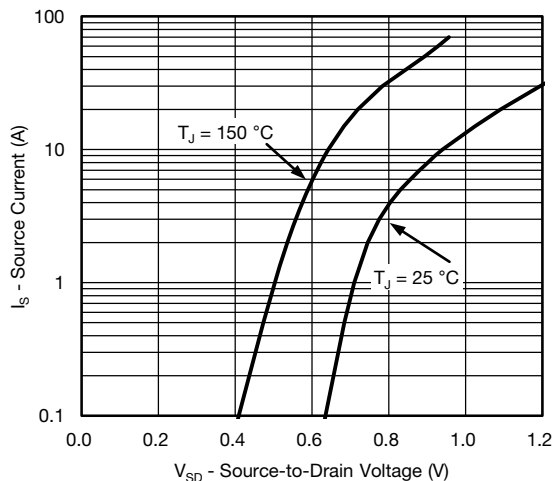
- a. Pulse test; pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$ .  
b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

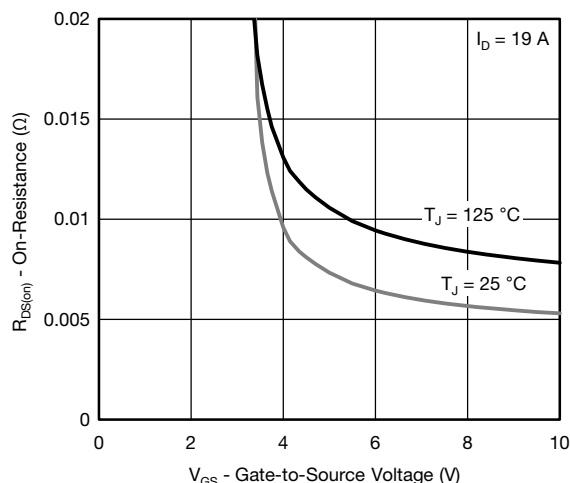
**CHANNEL-1 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)

**Output Characteristics**

**Transfer Characteristics**

**On-Resistance vs. Drain Current**

**Capacitance**

**Gate Charge**

**On-Resistance vs. Junction Temperature**



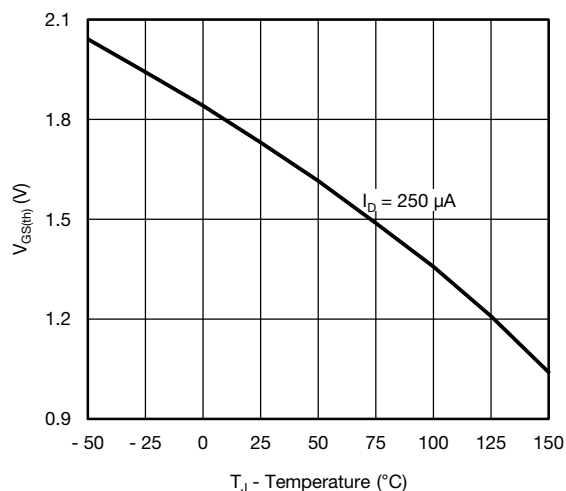
**CHANNEL-1 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)



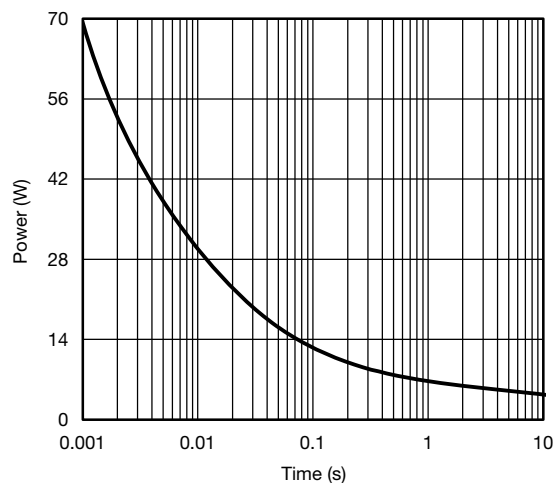
Source-Drain Diode Forward Voltage



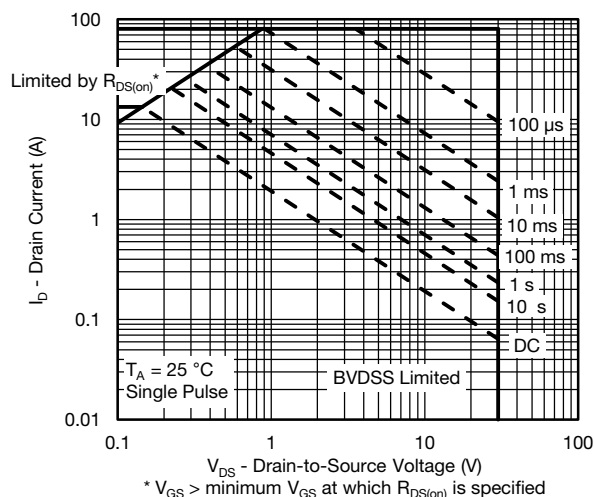
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



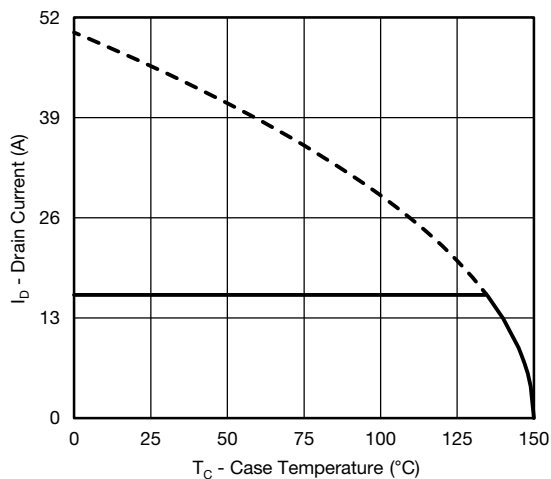
Single Pulse Power



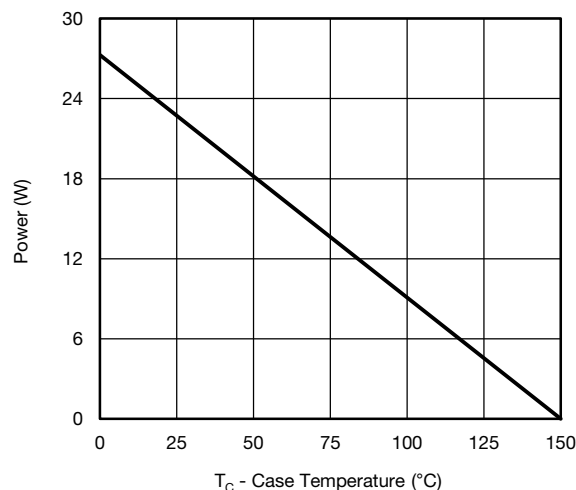
Safe Operating Area, Junction-to-Ambient



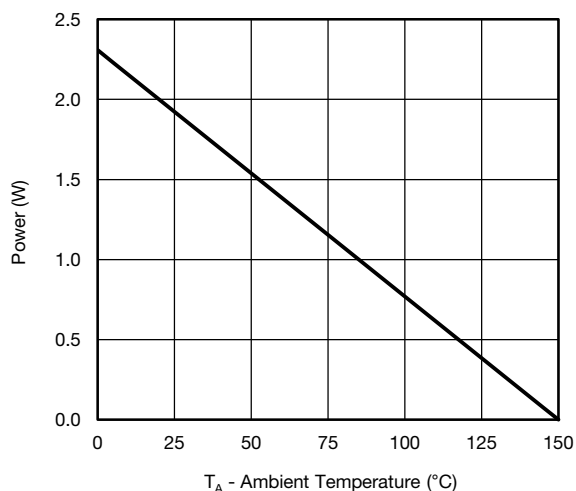
**CHANNEL-1 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)



**Current Derating\***



**Power, Junction-to-Case**

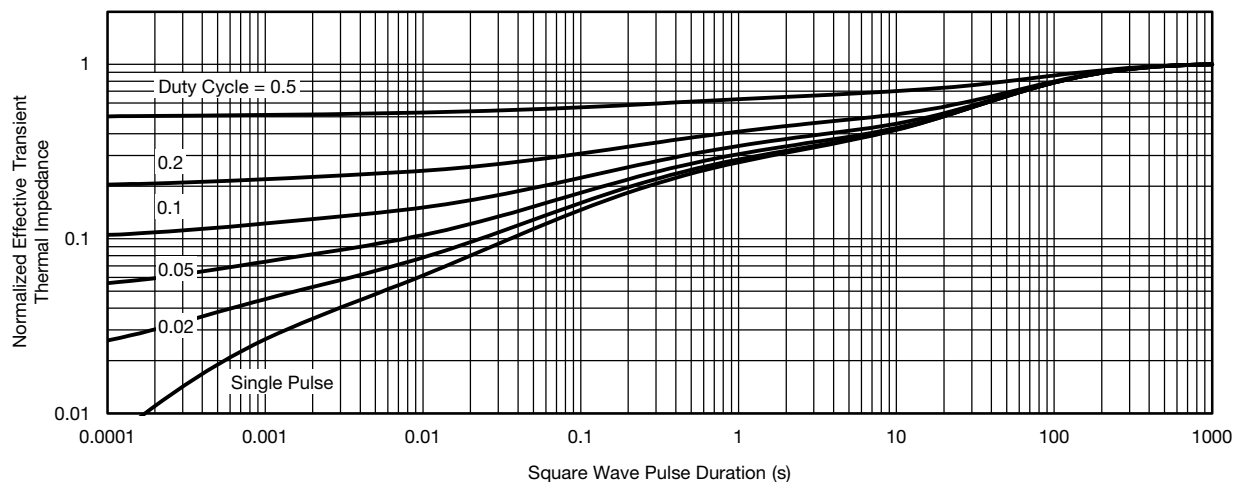


**Power, Junction-to-Ambient**

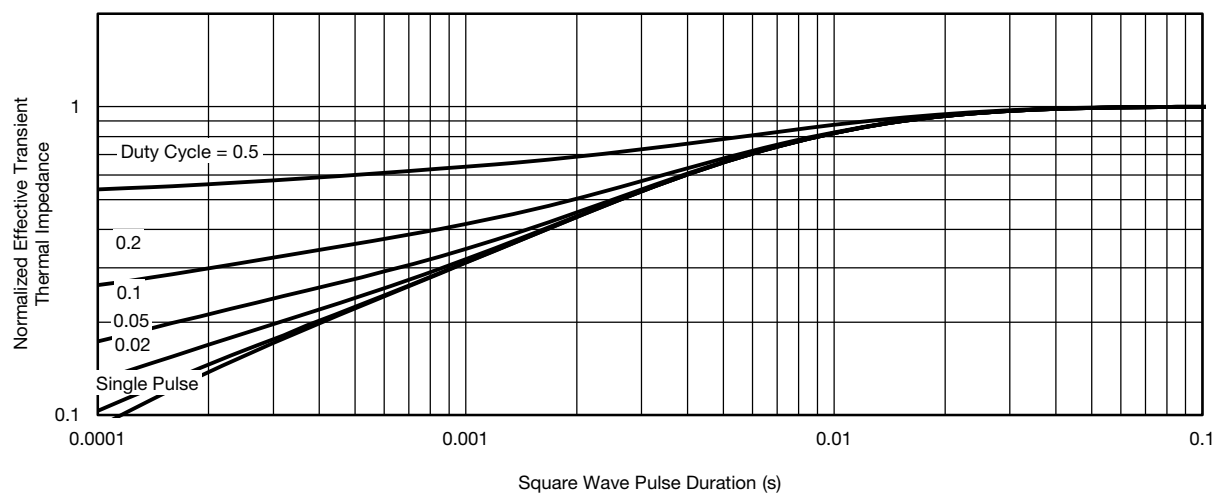
\* The power dissipation  $P_D$  is based on  $T_J$  (max.) =  $150\text{ }^{\circ}\text{C}$ , using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.



**CHANNEL-1 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)



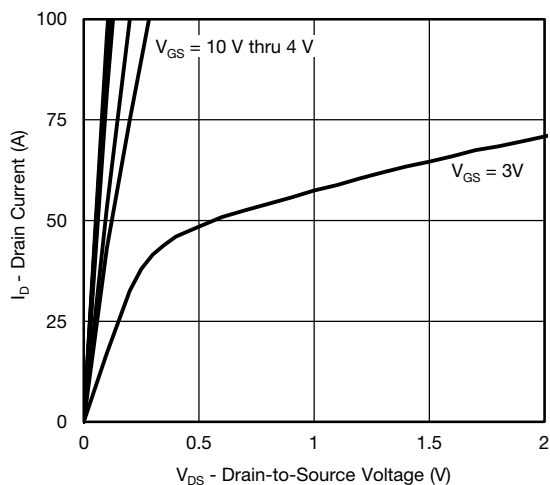
**Normalized Thermal Transient Impedance, Junction-to-Ambient**



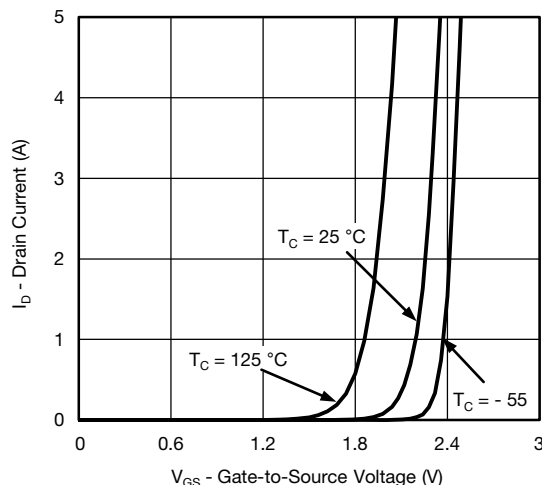
**Normalized Thermal Transient Impedance, Junction-to-Case**



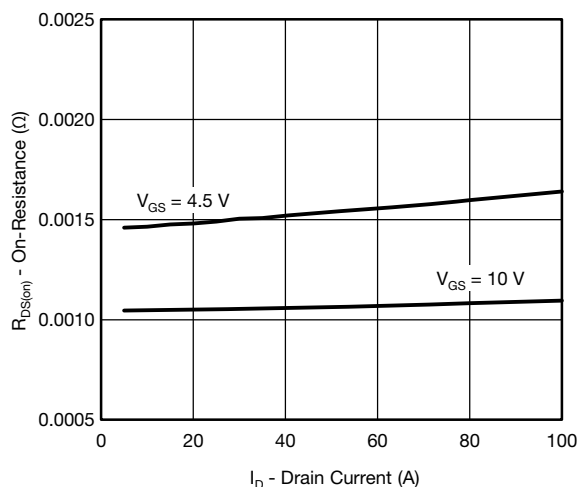
**CHANNEL-2 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)



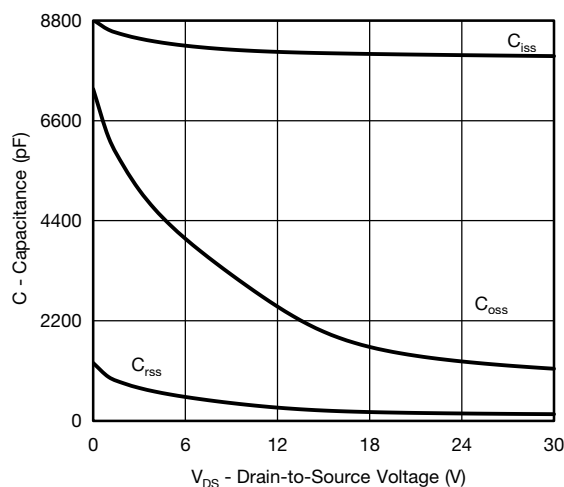
**Output Characteristics**



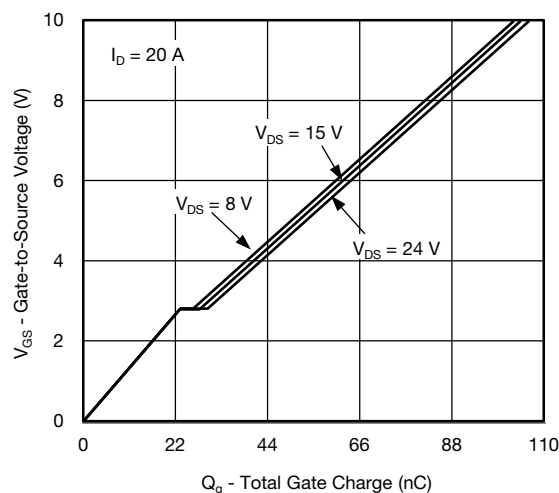
**Transfer Characteristics**



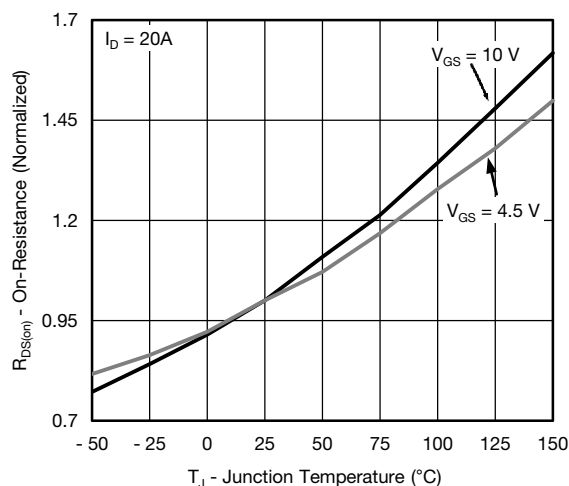
**On-Resistance vs. Drain Current**



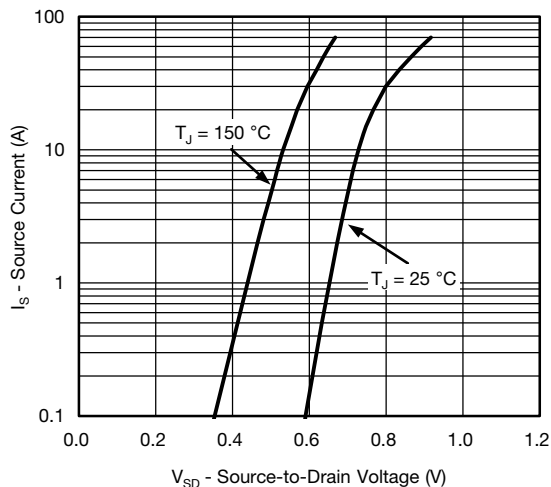
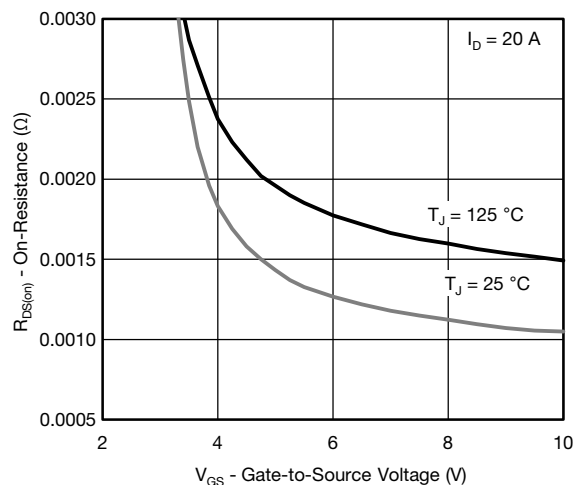
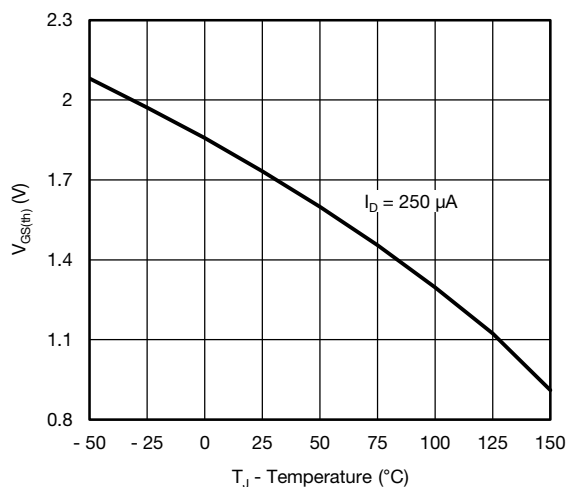
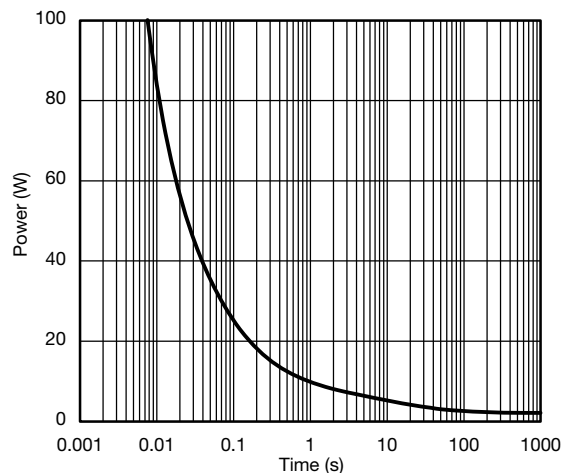
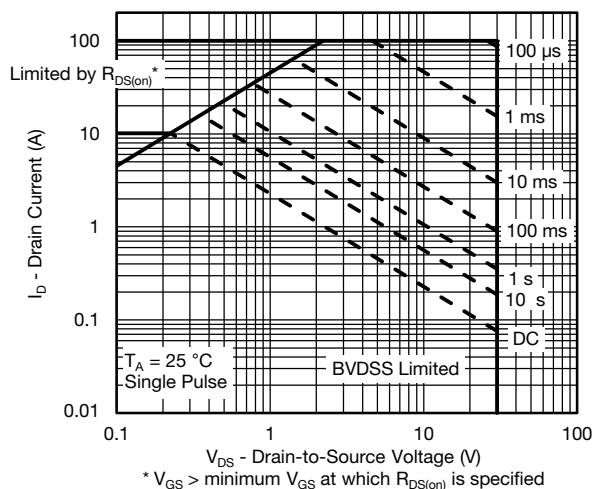
**Capacitance**



**Gate Charge**

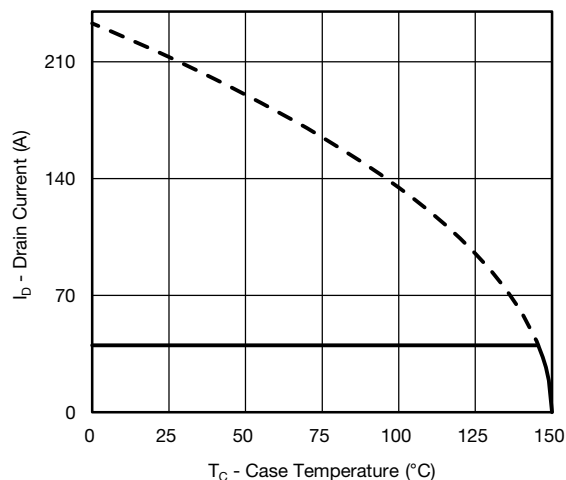


**On-Resistance vs. Junction Temperature**

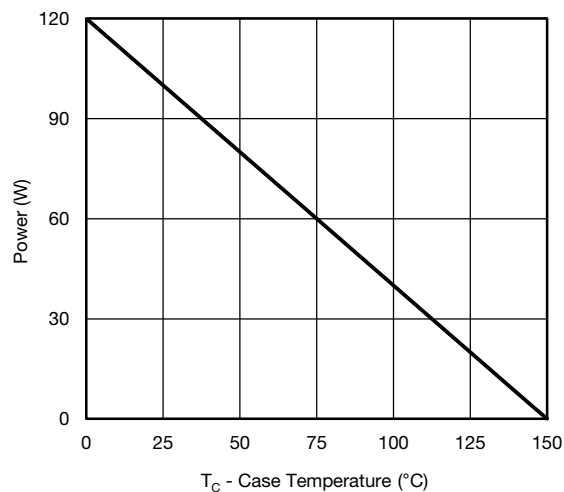
**CHANNEL-2 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)

**Source-Drain Diode Forward Voltage**

**On-Resistance vs. Gate-to-Source Voltage**

**Threshold Voltage**

**Single Pulse Power**

**Safe Operating Area, Junction-to-Ambient**



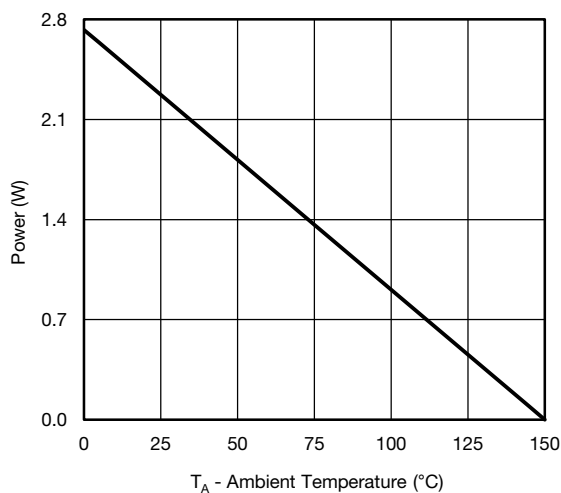
**CHANNEL-2 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)



**Current Derating\***



**Power, Junction-to-Case**

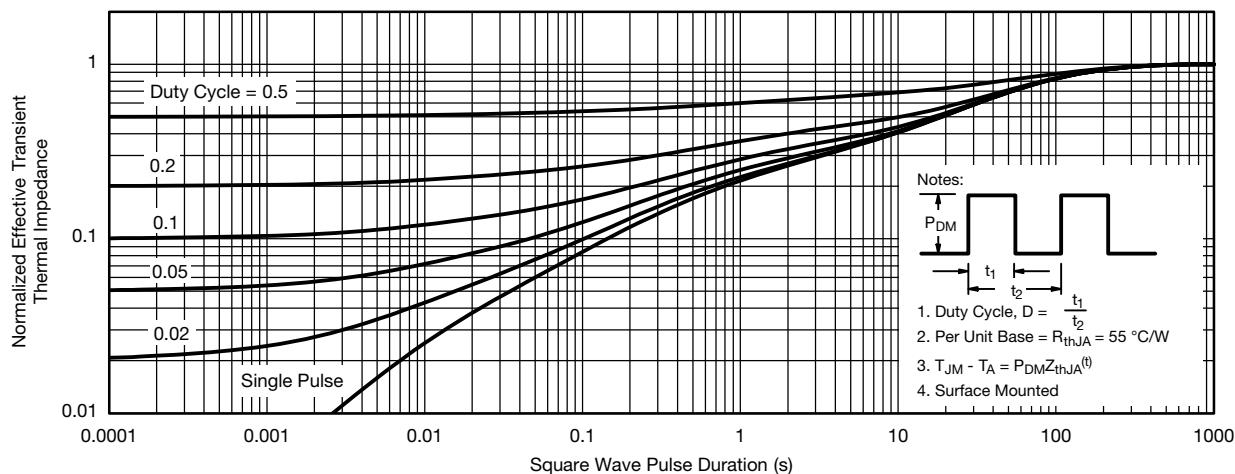


**Power, Junction-to-Ambient**

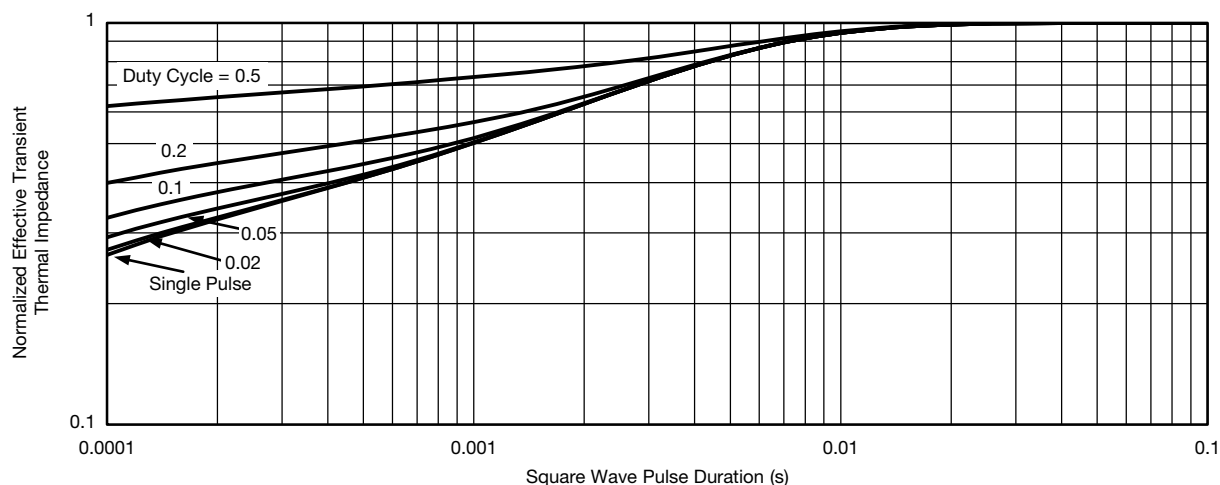
\* The power dissipation  $P_D$  is based on  $T_J (\text{max.}) = 150\text{ }^{\circ}\text{C}$ , using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.



**CHANNEL-2 TYPICAL CHARACTERISTICS** ( $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted)



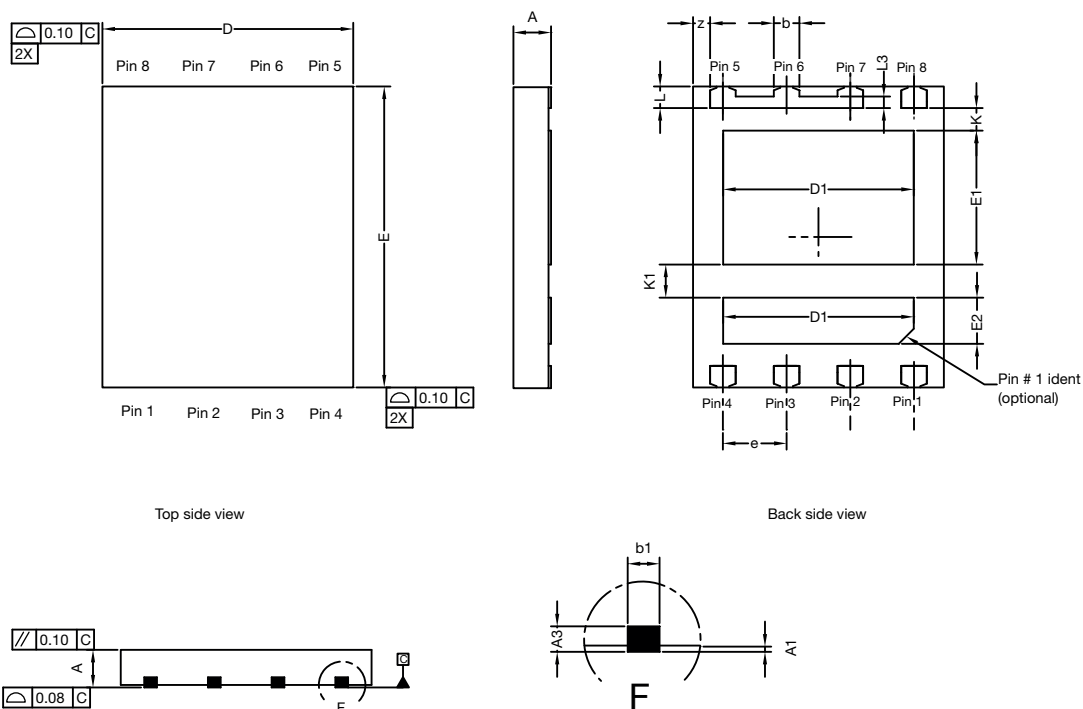
**Normalized Thermal Transient Impedance, Junction-to-Ambient**



**Normalized Thermal Transient Impedance, Junction-to-Case**

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## PowerPAIR® 6 x 5 Case Outline



| DIM.                            | MILLIMETERS |      |      | INCHES     |       |       |
|---------------------------------|-------------|------|------|------------|-------|-------|
|                                 | MIN.        | NOM. | MAX. | MIN.       | NOM.  | MAX.  |
| A                               | 0.70        | 0.75 | 0.80 | 0.028      | 0.030 | 0.032 |
| A1                              | 0.00        | -    | 0.10 | 0.000      | -     | 0.004 |
| A3                              | 0.15        | 0.20 | 0.25 | 0.006      | 0.007 | 0.009 |
| b                               | 0.43        | 0.51 | 0.61 | 0.017      | 0.020 | 0.024 |
| b1                              | 0.25 BSC    |      |      | 0.010 BSC  |       |       |
| D                               | 4.90        | 5.00 | 5.10 | 0.192      | 0.196 | 0.200 |
| D1                              | 3.75        | 3.80 | 3.85 | 0.148      | 0.150 | 0.152 |
| E                               | 5.90        | 6.00 | 6.10 | 0.232      | 0.236 | 0.240 |
| E1 Option AA (for W/B)          | 2.62        | 2.67 | 2.72 | 0.103      | 0.105 | 0.107 |
| E1 Option AB (for BWL)          | 2.42        | 2.47 | 2.52 | 0.095      | 0.097 | 0.099 |
| E2                              | 0.87        | 0.92 | 0.97 | 0.034      | 0.036 | 0.038 |
| e                               | 1.27 BSC    |      |      | 0.050 BSC  |       |       |
| K Option AA (for W/B)           | 0.45 typ.   |      |      | 0.018 typ. |       |       |
| K Option AB (for BWL)           | 0.65 typ.   |      |      | 0.025 typ. |       |       |
| K1                              | 0.66 typ.   |      |      | 0.025 typ. |       |       |
| L                               | 0.33        | 0.43 | 0.53 | 0.013      | 0.017 | 0.020 |
| L3                              | 0.23 BSC    |      |      | 0.009 BSC  |       |       |
| z                               | 0.34 BSC    |      |      | 0.013 BSC  |       |       |
| ECN: T14-0782-Rev. C, 22-Dec-14 |             |      |      |            |       |       |
| DWG: 6005                       |             |      |      |            |       |       |

# Recommended Minimum PAD for PowerPAIR® 6 x 5



Dimensions in millimeters (inch)

## Note

- Linear dimensions are in black, the same information is provided in ordinate dimensions which are in blue.



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