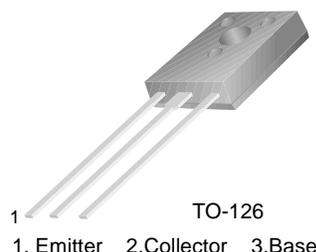


**High Voltage Switching
Low Power Switching Regulator
DC-DC Converter**

- High Breakdown Voltage
- Low Collector Saturation Voltage
- High Speed Switching



PNP Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Ratings | Units |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage | - 400 | V |
| V_{CEO} | Collector-Emitter Voltage | - 400 | V |
| V_{EBO} | Emitter-Base Voltage | - 7 | V |
| I_B | Base Current | - 0.25 | A |
| I_C | Collector Current (DC) | - 0.5 | A |
| I_{CP} | Collector Current (Pulse) | - 1 | A |
| P_C | Collector Dissipation ($T_a=25^\circ\text{C}$) | 1 | W |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 10 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 55 ~ 150 | $^\circ\text{C}$ |

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|----------------|--------------------------------------|---|-------|-------|---------------|
| $V_{CEO(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = - 100\text{mA}$, $I_B = - 10\text{mA}$ $L = - 20\text{mH}$ | - 400 | | V |
| $V_{CEX(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = - 200\text{mA}$, $I_{B1} = - I_{B2} = - 20\text{mA}$ $V_{BE(off)} = 5\text{V}$, $L = 10\text{mH}$ | - 400 | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = - 400\text{V}$, $I_E = 0$ | | - 100 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = - 5\text{V}$, $I_C = 0$ | | - 10 | μA |
| I_{CEX1} | Collector Cut-off Current | $V_{CE} = - 400\text{V}$, $V_{BE(off)} = 1.5\text{V}$ | | - 100 | μA |
| I_{CEX2} | Collector Cut-off Current | $V_{CE} = - 400\text{V}$, $V_{BE(off)} = 1.5\text{V}$ $T_C = 125^\circ\text{C}$ | | - 1 | mA |
| h_{FE} | DC Current Gain | $V_{CE} = - 5\text{V}$, $I_C = - 100\text{mA}$ | 30 | 200 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = - 100\text{mA}$, $I_B = - 10\text{mA}$ | | - 1 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C = - 100\text{mA}$, $I_B = - 10\text{mA}$ | | - 1.2 | V |
| t_{ON} | Turn On Time | $V_{CC} = - 150\text{V}$, $I_C = - 100\text{mA}$ $I_{B1} = - 10\text{mA}$, $I_{B2} = 20\text{mA}$ $R_L = 1.5\text{K}\Omega$ | | 1 | μs |
| t_{STG} | Storage Time | | | 4 | μs |
| t_F | Fall Time | | | 1 | μs |

h_{FE} Classification

| Classification | N | R | O | Y |
|----------------|---------|---------|----------|-----------|
| h_{FE} | 30 ~ 60 | 40 ~ 80 | 60 ~ 120 | 100 ~ 200 |

Typical Characteristics

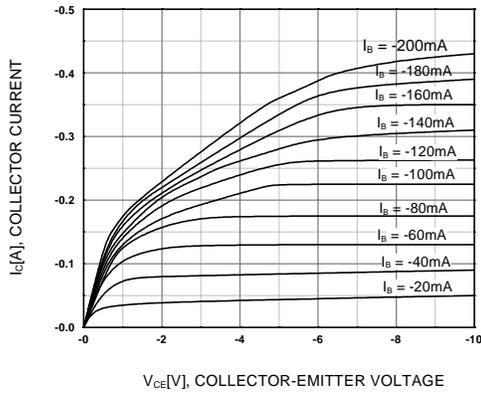


Figure 1. Static Characteristic

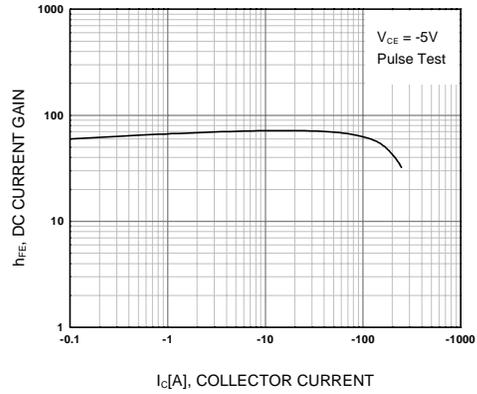


Figure 2. DC current Gain

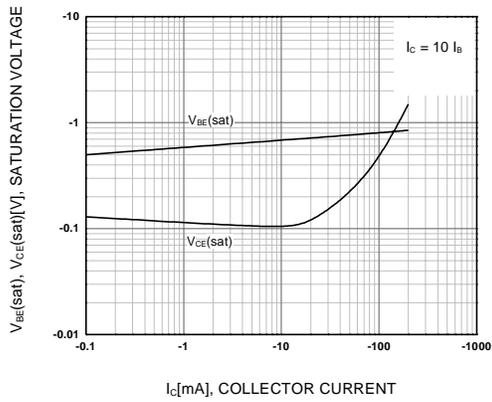


Figure 3. Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

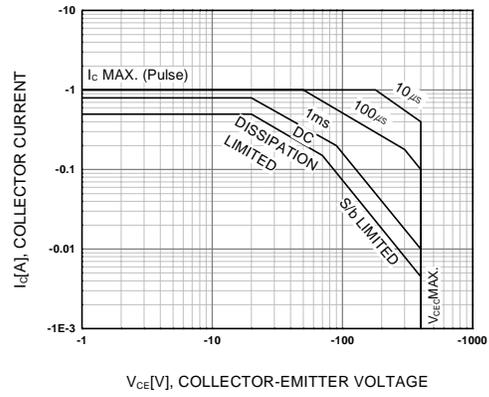


Figure 4. Safe Operating Area

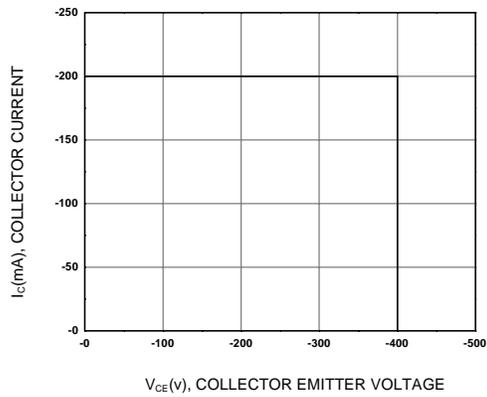


Figure 5. Reverse Bias Safe Operating Area

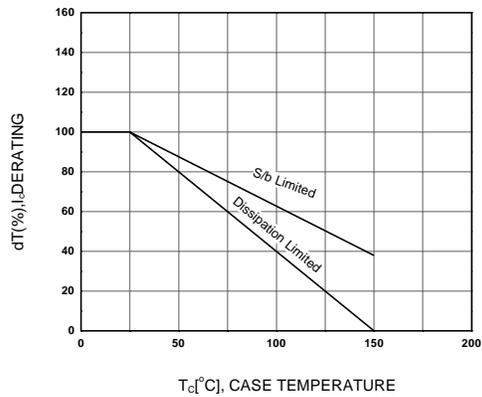


Figure 6. Derating Curve of Safe Operating Areas

Typical characteristics (Continued)

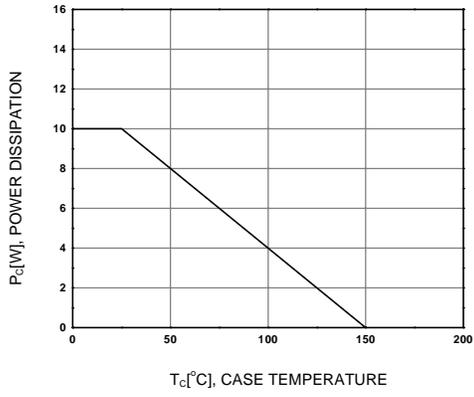
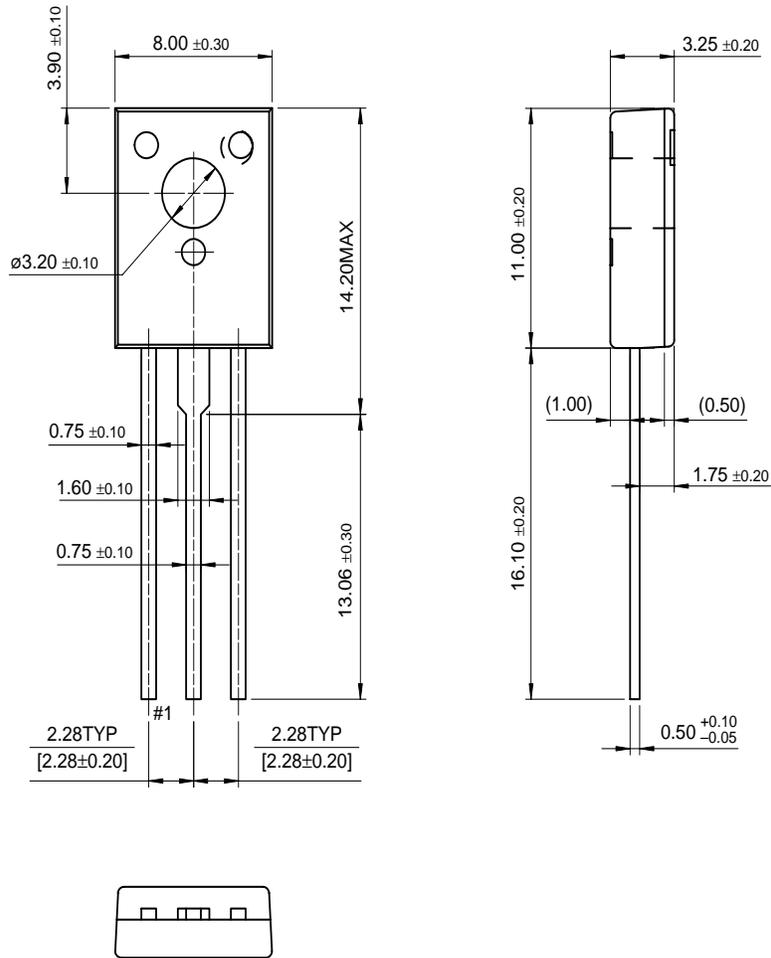


Figure 7. Power Derating

Package Dimensions

KSA1156

TO-126



Dimensions in Millimeters

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| CROSSVOLT™ | POP™ | UHC™ |
| E ² CMOS™ | PowerTrench® | VCX™ |
| FACT™ | QFET™ | |
| FACT Quiet Series™ | QS™ | |
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