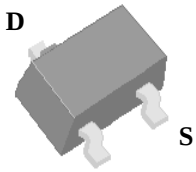
AP2315GEN

RoHS-compliant Product

Advanced Power Electronics Corp.

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

- ▼ **Simple Drive Requirement**
- ▼ **Small Package Outline**
- ▼ **Surface Mount Device**



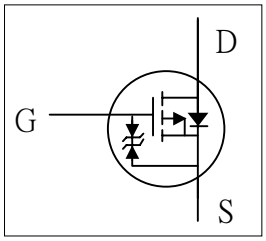
SOT-23

BV_{DSS}	-30V
$R_{DS(ON)}$	1.25Ω
I_D	- 840mA

Description

Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.

The SOT-23 package is widely preferred for commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	- 30	V
V_{GS}	Gate-Source Voltage	±16	V
I_D@T_A=25℃	Continuous Drain Current[3]	-840	mA
I_D@T_A=70℃	Continuous Drain Current[3]	-670	mA
I_{DM}	Pulsed Drain Current[1]	-2.5	A
P_D@T_A=25℃	Total Power Dissipation	0.69	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	180	℃/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	-	-	V
$\Delta BV_{DSS}/\Delta T_j$	Breakdown Voltage Temperature Coefficient	Reference to 25℃, I_D=-1mA	-	-0.1	-	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-0.8A	-	-	1.25	Ω
		V_{GS}=-4.5V, I_D=-0.5A	-	-	2.4	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1	-	-3	V
g_{fs}	Forward Transconductance	V_{DS}=-10V, I_D=-0.8A	-	880	-	mS
I_{DSS}	Drain-Source Leakage Current (T_j=25°C)	V_{DS}=-30V, V_{GS}=0V	-	-	-1	uA
	Drain-Source Leakage Current (T_j=70°C)	V_{DS}=-24V, V_{GS}=0V	-	-	-25	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±16V	-	-	±30	uA
Q_g	Total Gate Charge[2]	I_D=-0.8A	-	1	1.6	nC
Q_{gs}	Gate-Source Charge	V_{DS}=-25V	-	0.6	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=-4.5V	-	0.4	-	nC
$t_{d(on)}$	Turn-on Delay Time[2]	V_{DS}=-15V	-	10	-	ns
t_r	Rise Time	I_D=-0.8A	-	8	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω,V_{GS}=-10V	-	22	-	ns
t_f	Fall Time	R_D=18.8Ω	-	17	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	30	50	pF
C_{oss}	Output Capacitance	V_{DS}=-25V	-	15	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	10	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=-1.1A, V_{GS}=0V	-	-	-1.3	V
t_{rr}	Reverse Recovery Time	I_S=-0.8A, V_{GS}=0V,	-	27	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	30	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in^2 copper pad of FR4 board ;400℃/W when mounted on min. copper pad.

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.

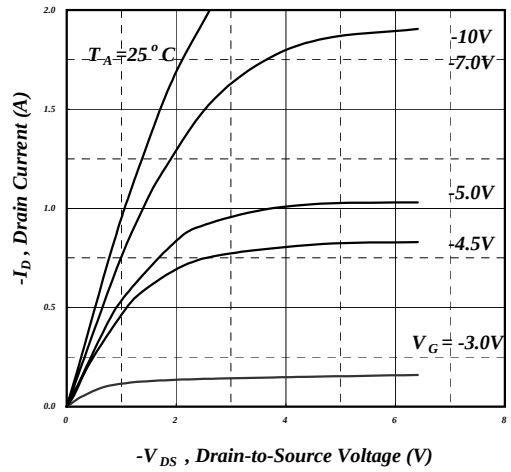


Fig 1. Typical Output Characteristics

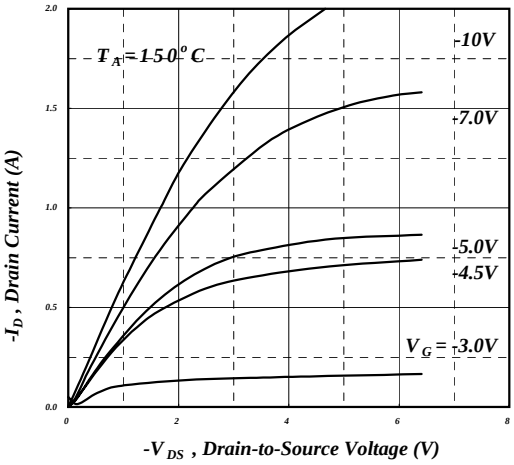


Fig 2. Typical Output Characteristics

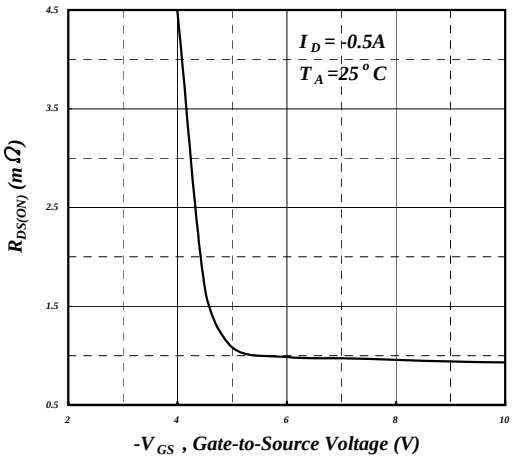


Fig 3. On-Resistance v.s. Gate Voltage

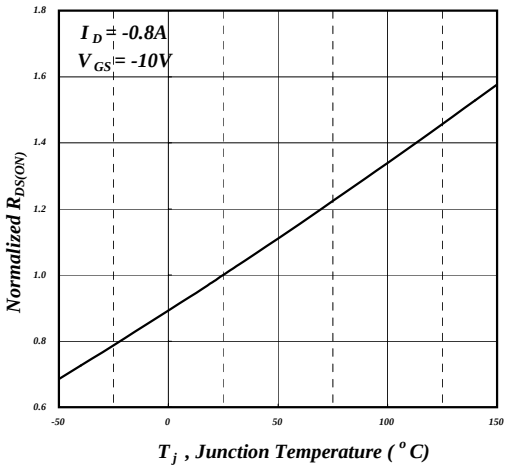


Fig 4. Normalized On-Resistance v.s. Junction Temperature

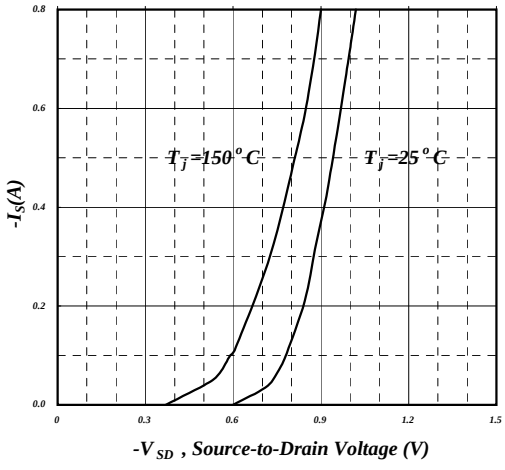


Fig 5. Forward Characteristic of Reverse Diode

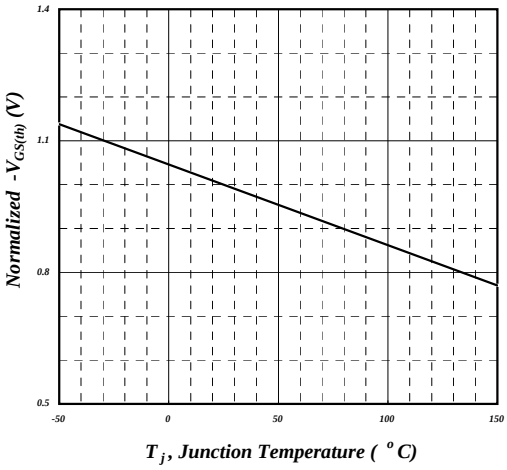


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

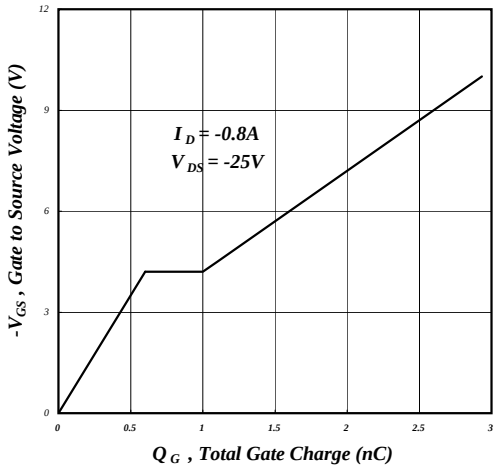


Fig 7. Gate Charge Characteristics

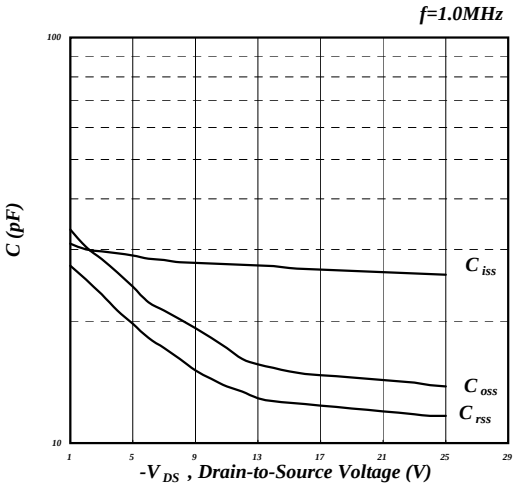


Fig 8. Typical Capacitance Characteristics

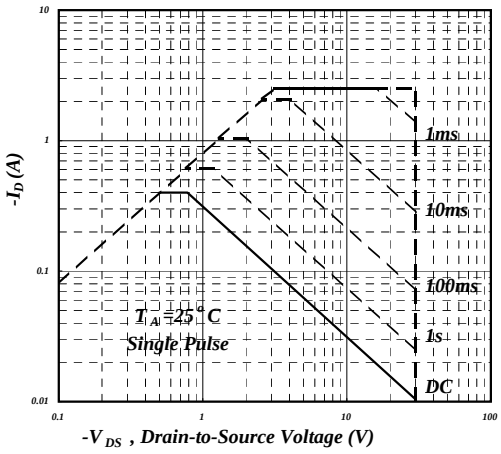


Fig 9. Maximum Safe Operating Area

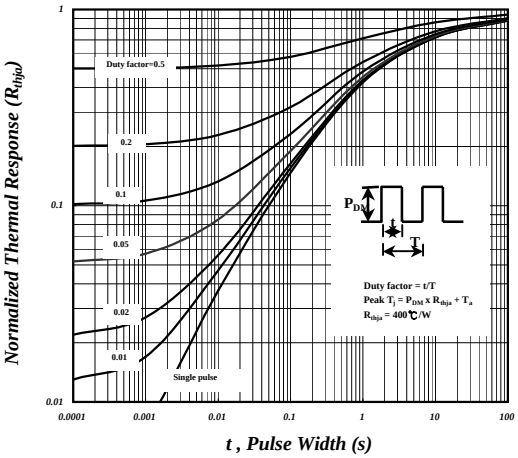


Fig 10. Effective Transient Thermal Impedance

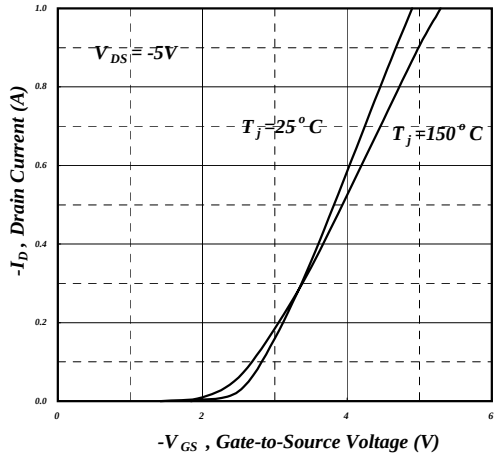


Fig 11. Transfer Characteristics

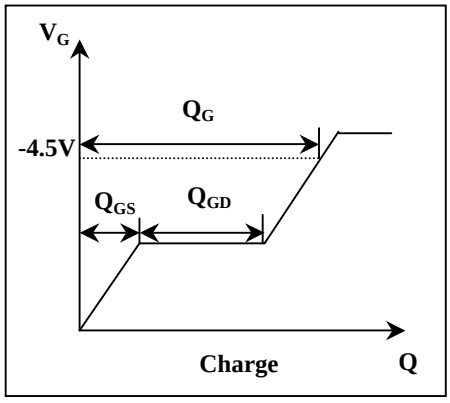
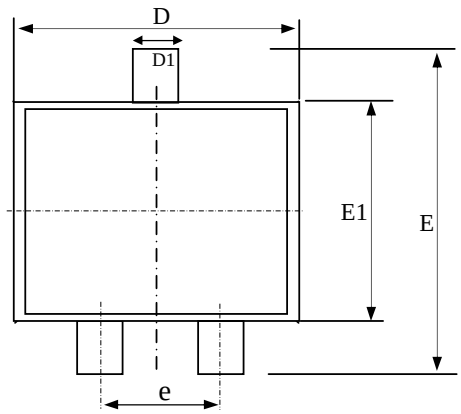
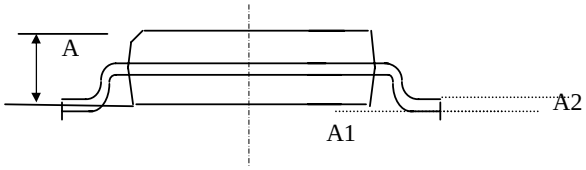


Fig 12. Gate Charge Waveform

Package Outline : SOT-23



	Millimeters		
SYMBOLS	MIN	NOM	MAX
A	1.00	1.15	1.30
A1	0.00	--	0.10
A2	0.10	0.15	0.25
D1	0.30	0.40	0.50
e	1.70	2.00	2.30
D	2.70	2.90	3.10
E	2.40	2.65	3.00
E1	1.40	1.50	1.60



1.All Dimension Are In Millimeters.

2.Dimension Does Not Include Mold Protrusions.

Part Marking Information & Packing : SOT-23