

Features

- Trench MV MOSFET Technology
- High Density Cell Design for Low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

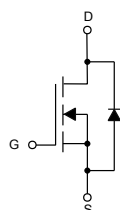
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 73.5°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
		1.9	
Pulsed Drain Current (Note 3)	I_{DM}	12	A
Total Power Dissipation (Note 4)	P_D	1.7	W

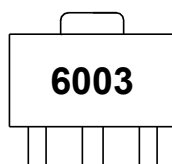
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

Internal Structure and Marking Code

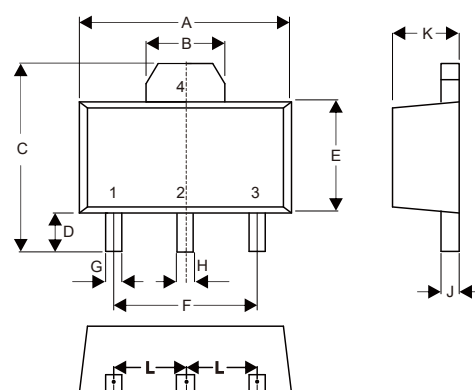


1. GATE
2. SOURCE
3. DRAIN



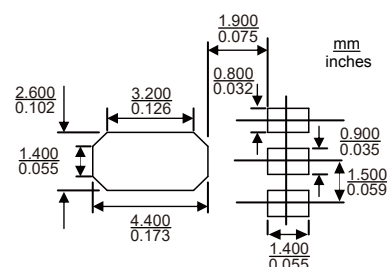
N-CHANNEL MOSFET

SOT-89



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B		0.061		1.55	TYP.
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F		0.118		3.00	TYP.
G	0.013	0.020	0.33	0.52	
H	0.015	0.021	0.38	0.53	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L		0.059		1.50	TYP.

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	60			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.65	0.82	1.55	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3A		82	100	mΩ
		V _{GS} =4.5V, I _D =2A		85	120	
Gate Resistance	R _g	f=1 MHz, Open drain		2		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				3	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =3A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =1.5A,di/dt=530A/μs		6.8		ns
Reverse Recovery Charge	Q _{rr}			9.1		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHz		699		pF
Output Capacitance	C _{oss}			41		
Reverse Transfer Capacitance	C _{rss}			34		
Total Gate Charge	Q _g	V _{DS} =30V,V _{GS} =10V,I _D =3A		16		nC
Gate-Source Charge	Q _{gs}			1.3		
Gate-Drain Charge	Q _{gd}			2.4		
Turn-On Delay Time	t _{d(on)}	V _{DS} =30V, V _{GS} =10V, R _G =2.2Ω, I _D =1.5A		2.1		ns
Turn-On Rise Time	t _r			14		
Turn-Off Delay Time	t _{d(off)}			21		
Turn-Off Fall Time	t _f			1.7		

Curve Characteristics

Fig.1 - Typical Output Characteristics

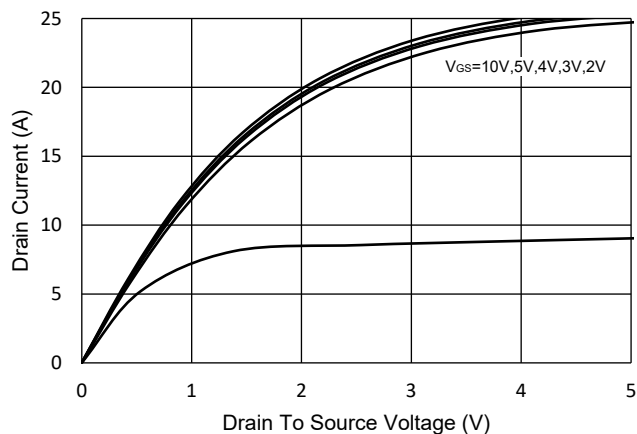


Fig.2 - Transfer Characteristic

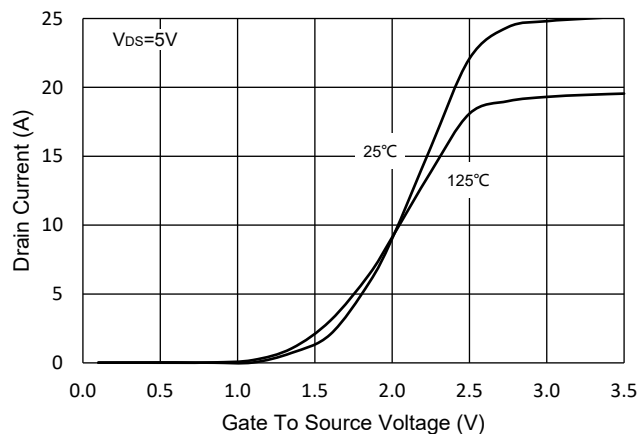


Fig.3 - $R_{DS(ON)}$ - V_{GS}

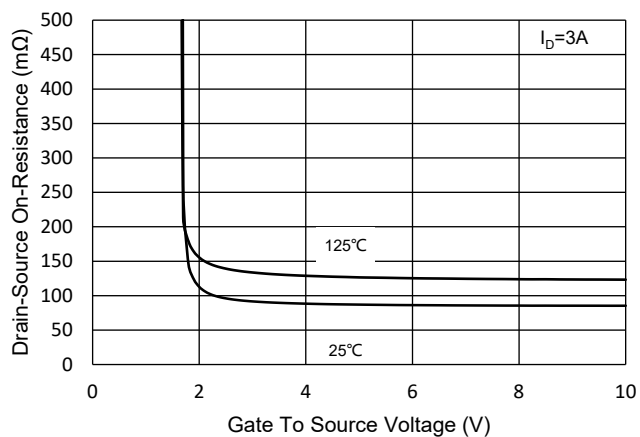


Fig. 4 - $R_{DS(ON)}$ - I_D

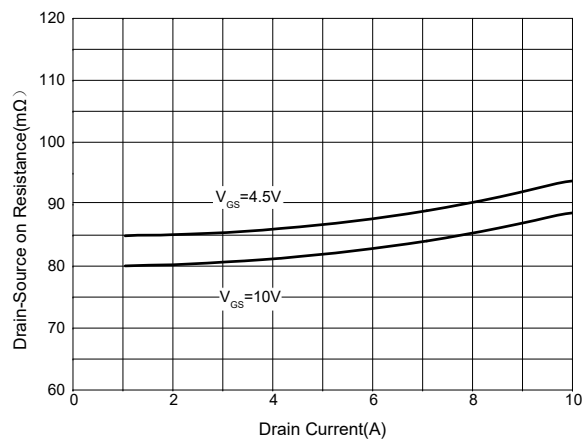


Fig.5 - Capacitance Characteristics

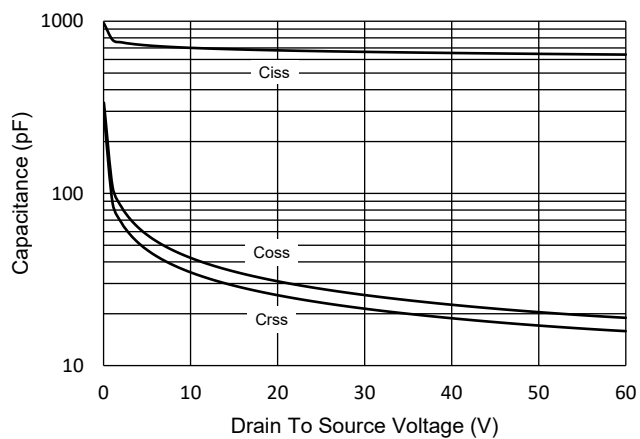
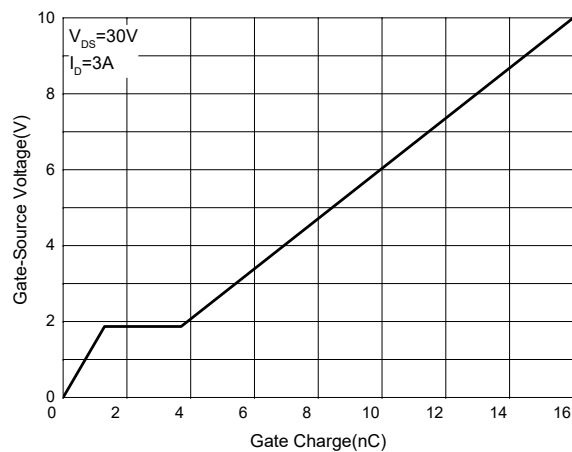


Fig. 6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

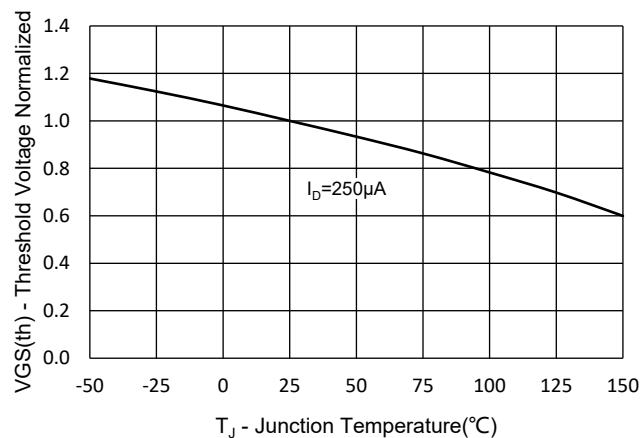


Fig.8 - Normalized On Resistance Characteristics

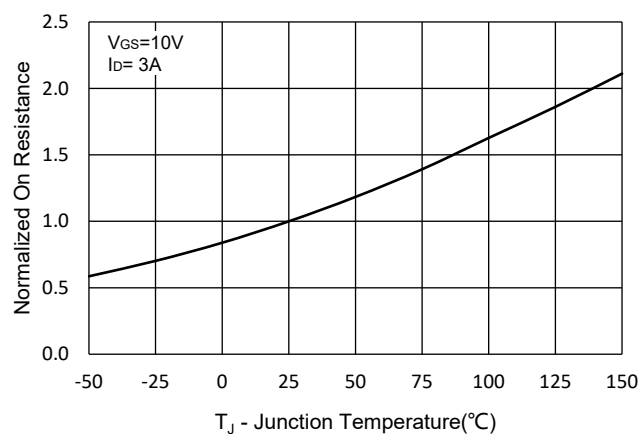


Fig.9 - I_S - V_{SD}

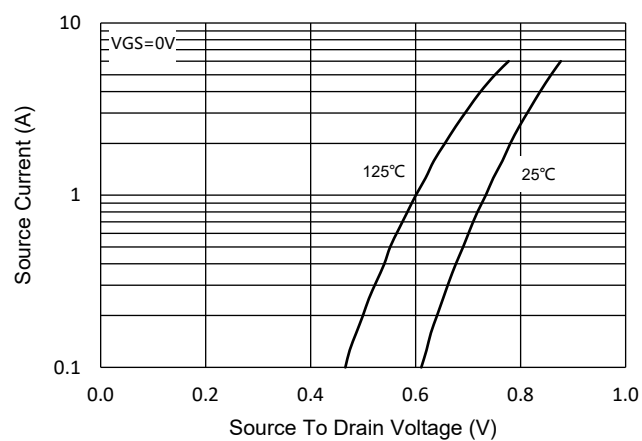


Fig.10 - Drain Current

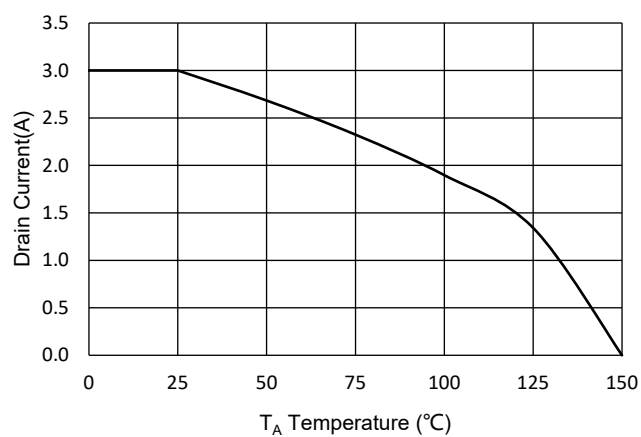
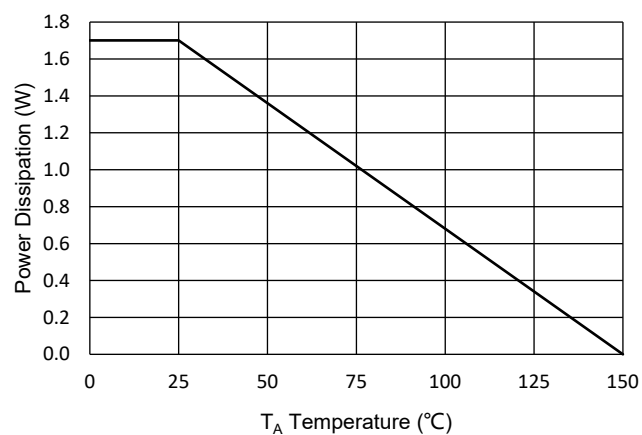


Fig.11 - PD Dissipation



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 1Kpcs/Reel

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