

Features

- Trench MOSFET Technology
- ESD Protected Up To 2KV (HBM)
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device^(Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

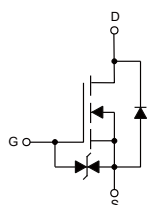
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 150°C/W Junction to Ambient^(Note2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltlage		V _{GS}	±30	V
Continuous Drain Current	T _A =25°C	I _D	0.5	A
	T _A =100°C		0.3	
Pulsed Drain Current ^(Note3)		I _{DM}	2	A
Total Power Dissipation ^(Note4)		P _D	0.83	W

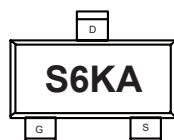
Note:

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

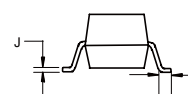
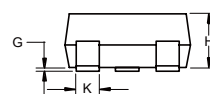
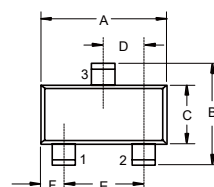


1. GATE
2. SOURCE
3. DRAIN



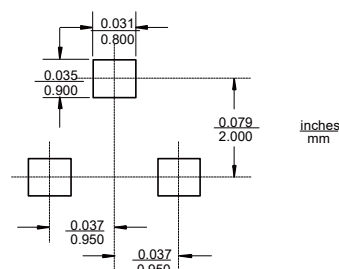
N-Channel MOSFET

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

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} =±30V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =0.5A		0.9	1.8	Ω
		V _{GS} =4.5V, I _D =0.3A		1.1	2.5	
Forward Tranconductance	g _{FS}	V _{DS} =5V, I _S =0.5A		0.6		S
Gate Resistance	R _g	f=1MHz, Open drain		60		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				0.5	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =0.3A			1.5	V
Reverse Recovery Time	t _{rr}	I _F =0.5A, dI _F /dt=100A/μs		13		ns
Reverse Recovery Charge	Q _{rr}			6		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz		29		pF
Output Capacitance	C _{oss}			4.7		
Reverse Transfer Capacitance	C _{rss}			2.6		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =0.5A		1.1		nC
Gate-Source Charge	Q _{gs}			0.22		
Gate-Drain Charge	Q _{gd}			0.41		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =30V, Rg=3Ω, I _D =0.5A		4		ns
Turn-On Rise Time	t _r			18		
Turn-Off Delay Time	t _{d(off)}			8		
Turn-Off Fall Time	t _f			46		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

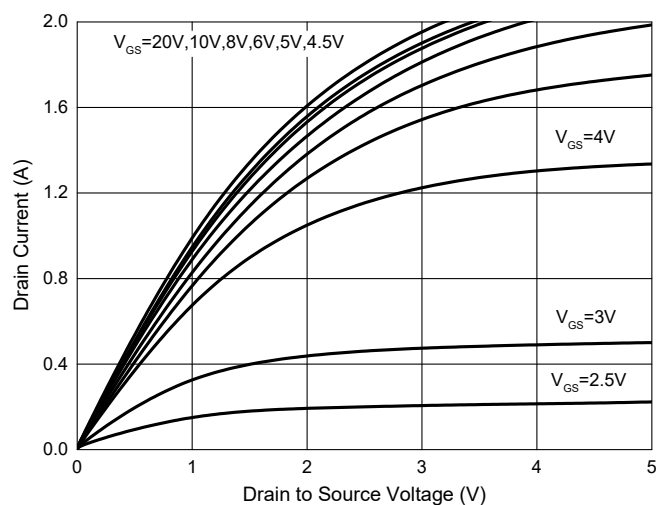


Fig. 2 - Transfer Characteristics

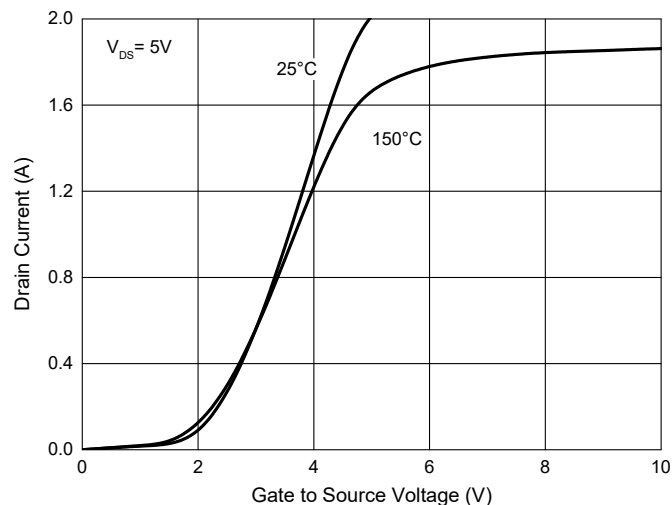


Fig. 3 - $R_{DS(ON)} - V_{GS}$

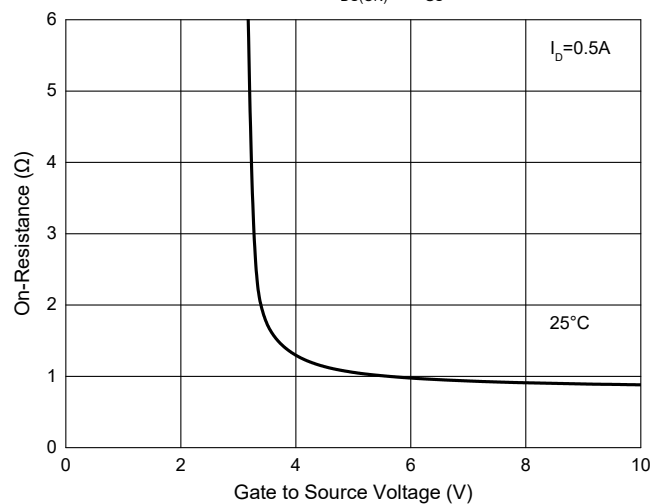


Fig. 4 - $R_{DS(ON)} - I_D$

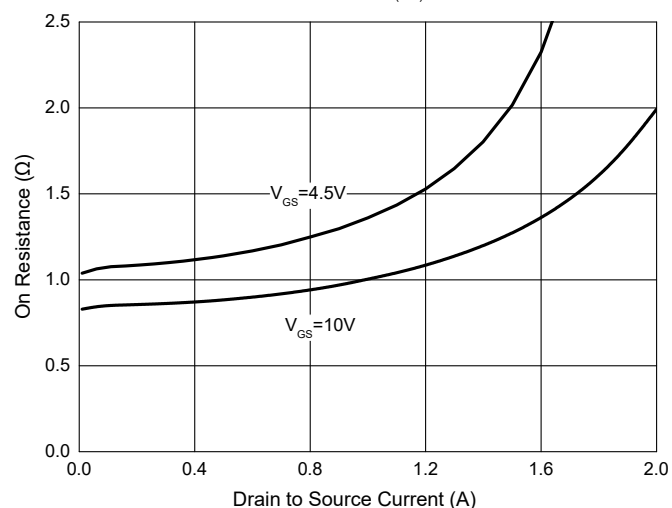


Fig. 5 - Capacitance Characteristics

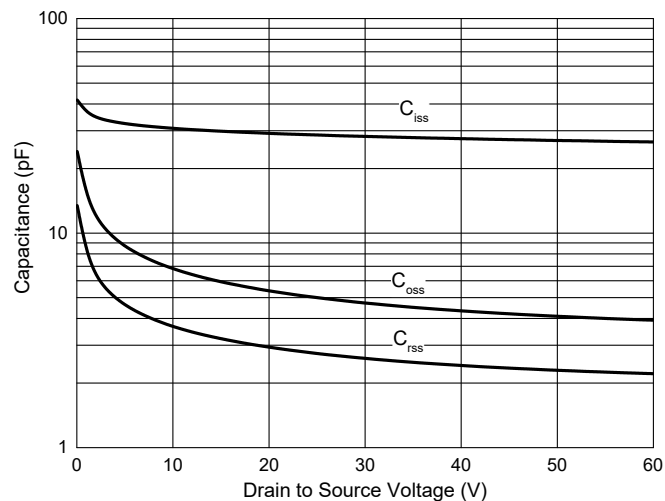
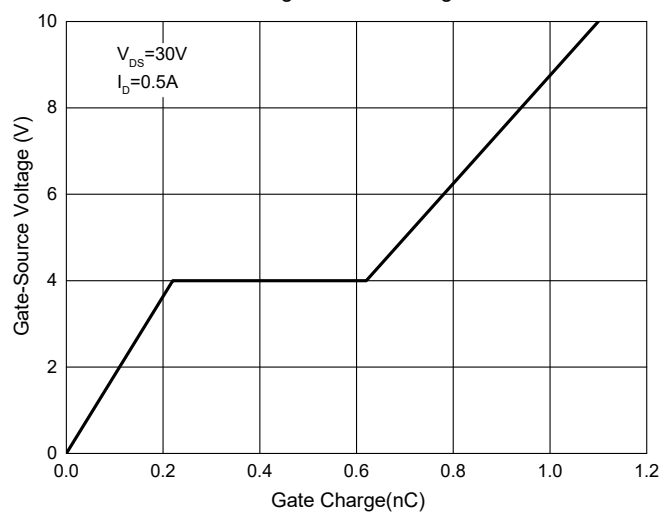


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

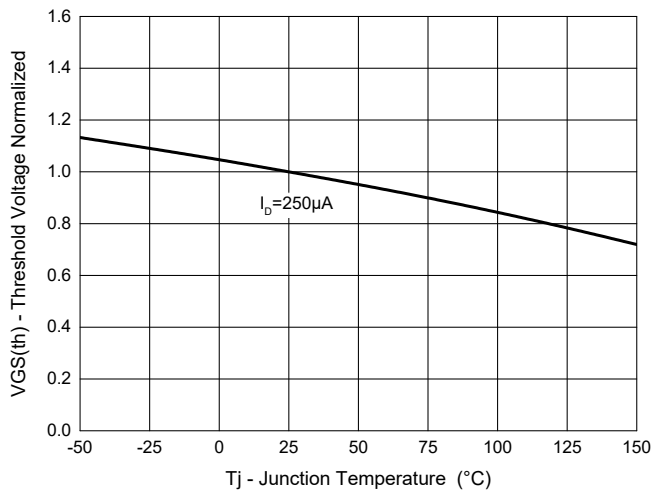


Fig. 8 - Normalized On Resistance Characteristics

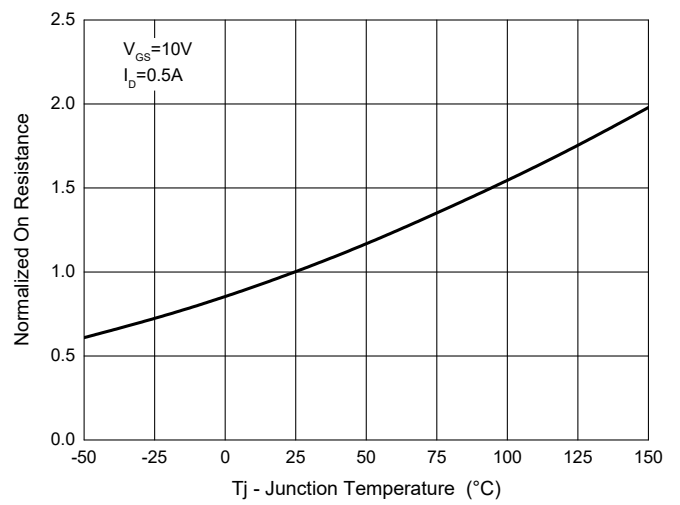


Fig. 9 - $I_S - V_{SD}$

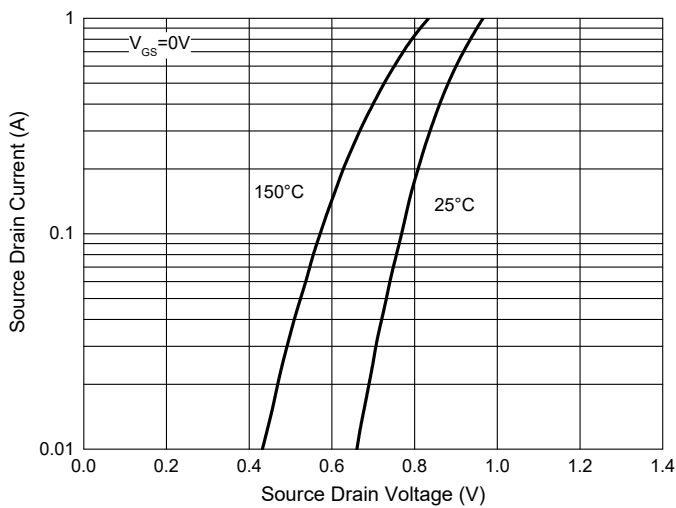


Fig. 10 - Drain Current

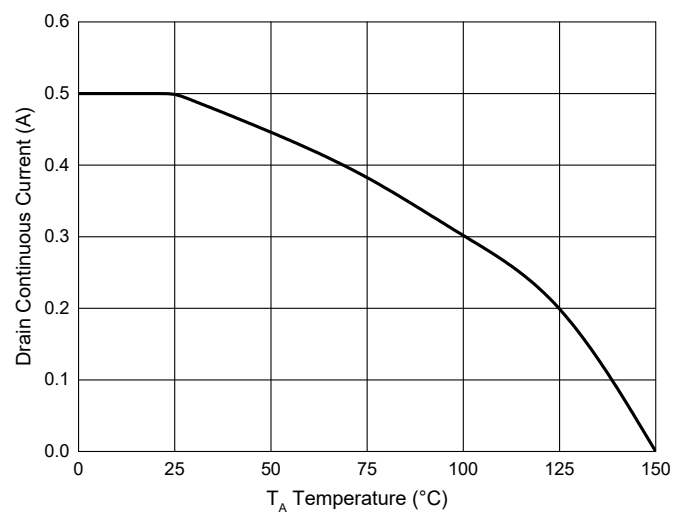
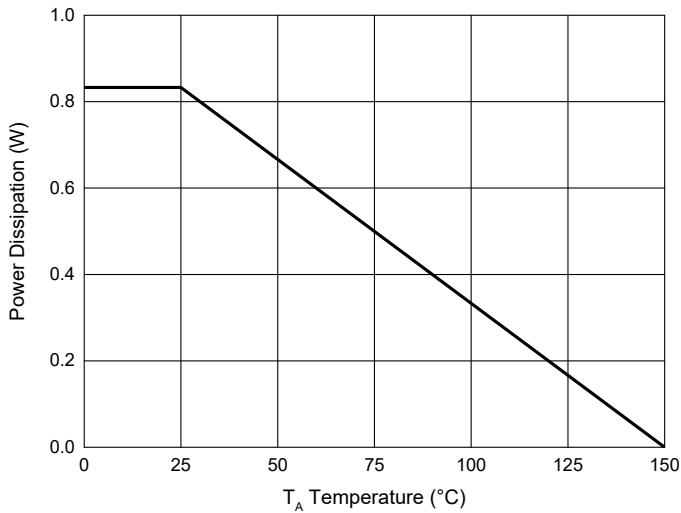


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

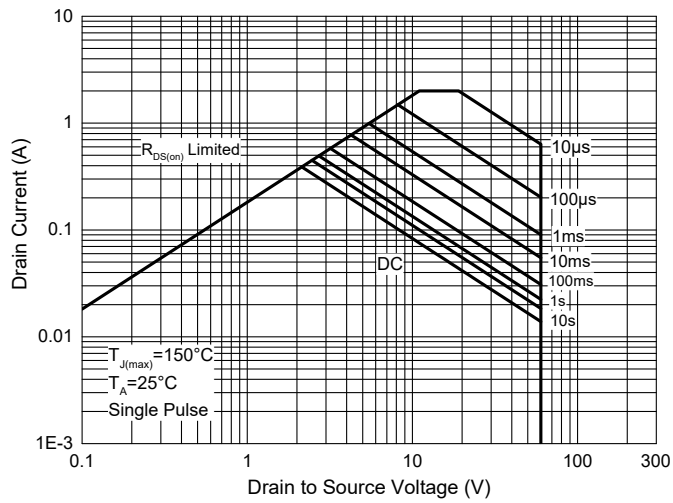
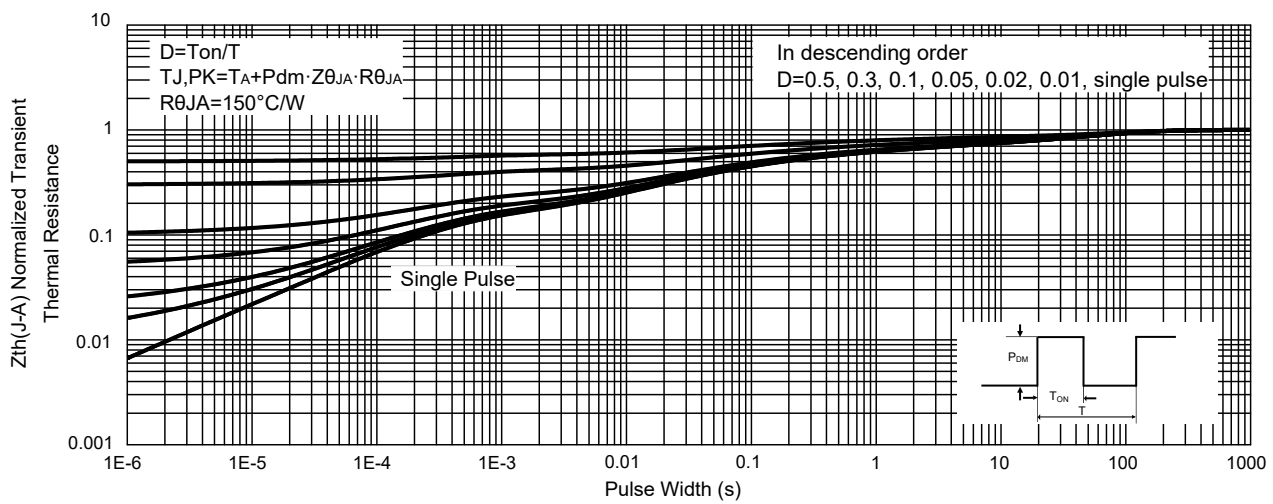


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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