

Features

- 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

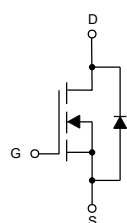
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 80°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	1	A
		0.6	
Pulsed Drain Current (Note3)	I_{DM}	4	A
Total Power Dissipation (Note4)	P_D	1.6	W

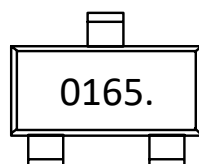
Note:

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 $T_A = 25^\circ\text{C}$. The Power dissipation P_{DSM} is based on $R_{\theta JA} \leq 10s$ and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
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

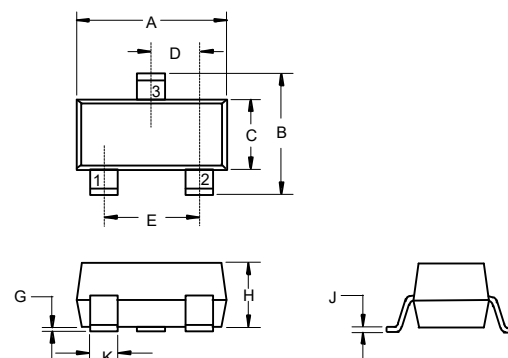


1. GATE
2. SOURCE
3. DRAIN



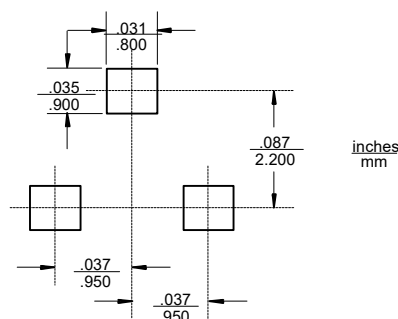
N-CHANNEL Super-Junction MOSFET

SOT-23-3L



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.113	0.117	2.87	2.97	
B	0.108	0.112	2.75	2.85	
C	0.061	0.065	1.55	1.65	
D	0.036	0.038	0.914	0.965	
E	0.073	0.077	1.85	1.95	
G	0.0016	0.0039	0.04	0.100	
H	0.041	0.045	1.05	1.15	
J	0.006	0.007	0.14	0.17	
K	0.012	0.020	0.30	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	650			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.1	4.0	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =100mA		9	11	Ω
Gate Resistance	R _g	F=1 MHz, Open drain		22		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				1	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A			1.3	V
Reverse Recovery Time	t _{rr}	I _F =0.5A, dI _F /dt=100A/μs		126		ns
Reverse Recovery Charge	Q _{rr}			241		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =300V, V _{GS} =0V, f=1MHz		34		pF
Output Capacitance	C _{oss}			2.8		
Reverse Transfer Capacitance	C _{rss}			0.8		
Total Gate Charge	Q _g	V _{DS} =300V, V _{GS} =10V, I _D =0.5A		3		nC
Gate-Source Charge	Q _{gs}			0.3		
Gate-Drain Charge	Q _{gd}			2.2		
Turn-On Delay Time	t _{d(on)}	V _{DD} =300V, V _{GS} =10V , I _{DS} =0.5A, R _{GEN} =3Ω		4.5		ns
Turn-On Rise Time	t _r			9		
Turn-Off Delay Time	t _{d(off)}			8.8		
Turn-Off Fall Time	t _f			59		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

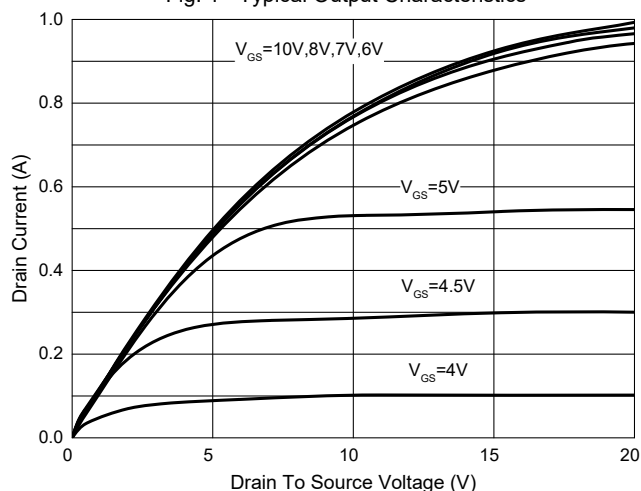


Fig. 2 - Transfer Characteristics

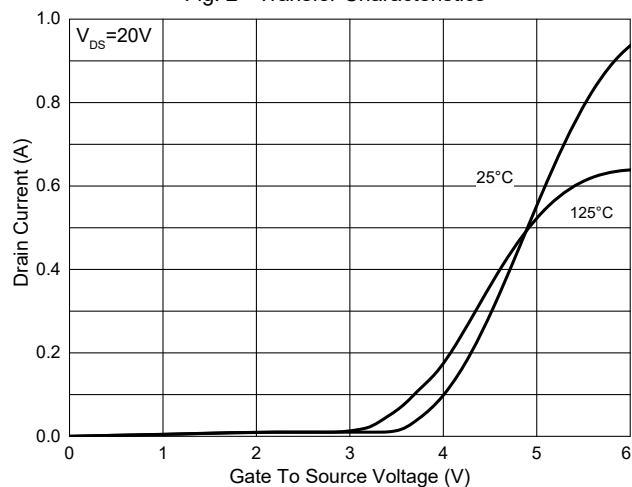


Fig. 3 - $R_{DS(ON)} - V_{GS}$

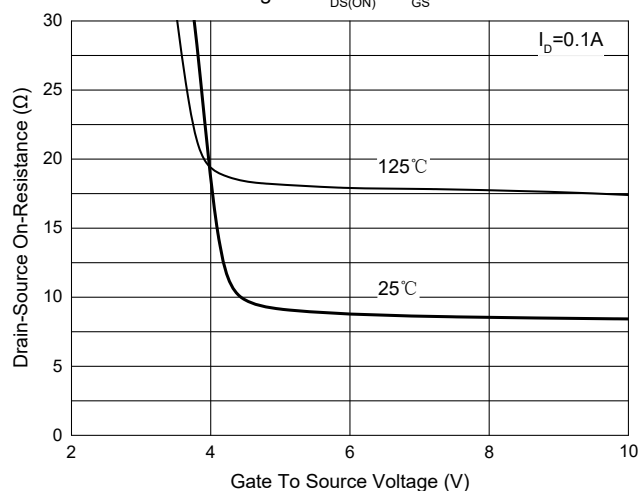


Fig. 4 - $R_{DS(ON)} - I_D$

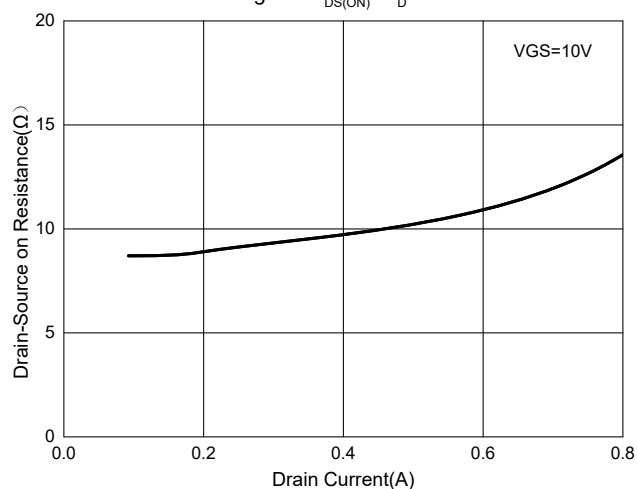


Fig. 5 - Capacitance Characteristics

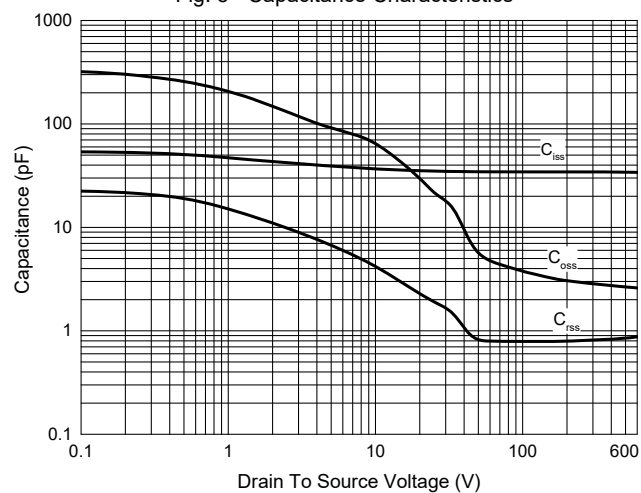
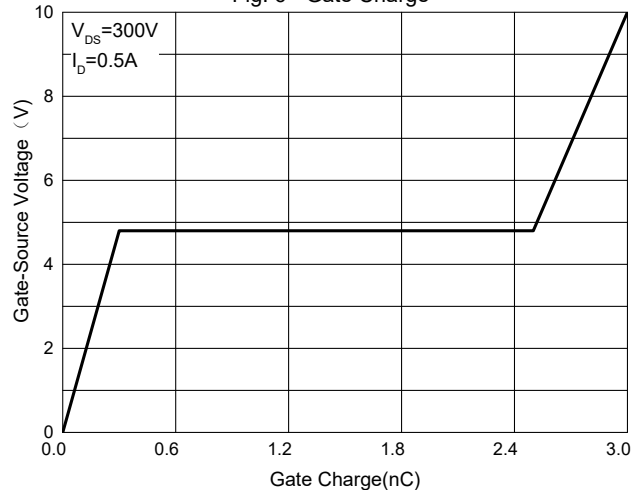


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

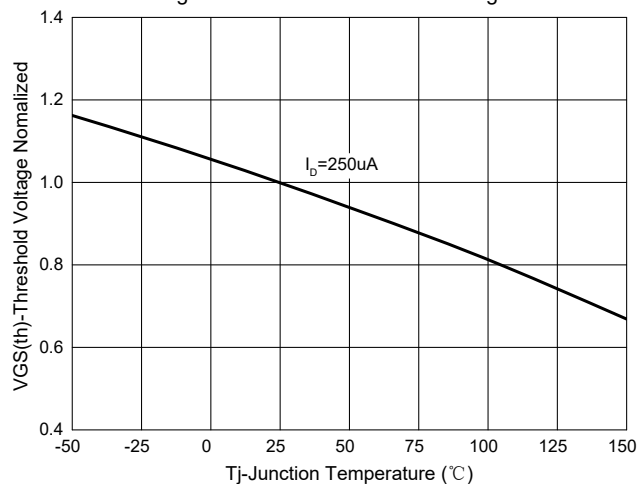


Fig.8-Normalized On Resistance Characteristics

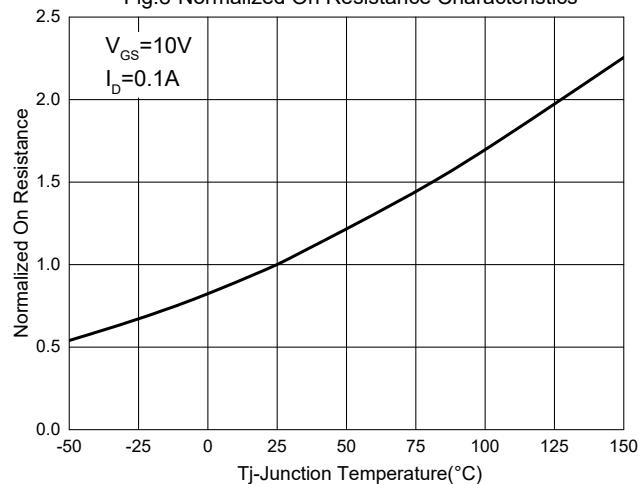


Fig.9 - $I_S - V_{SD}$

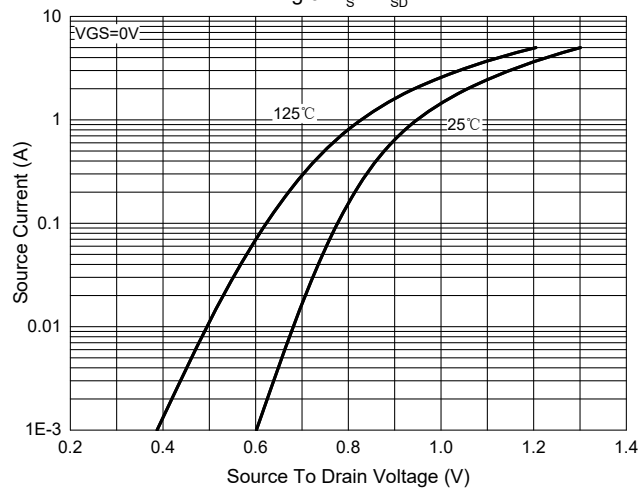


Fig. 10 - Drain Current

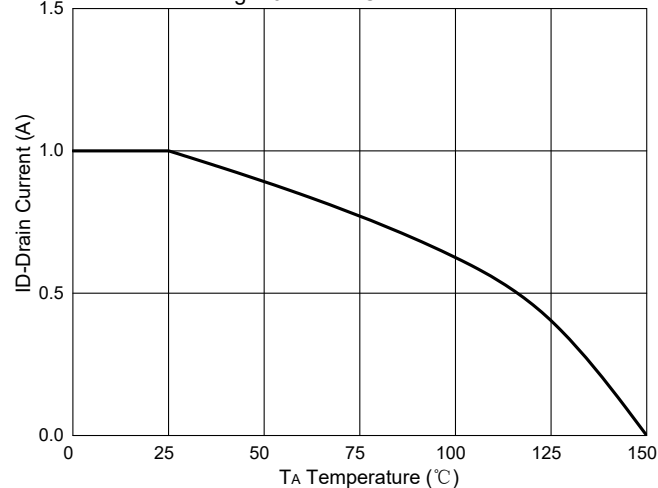
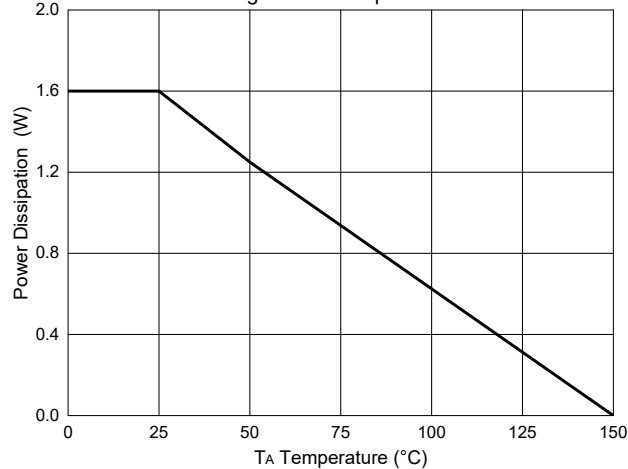


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

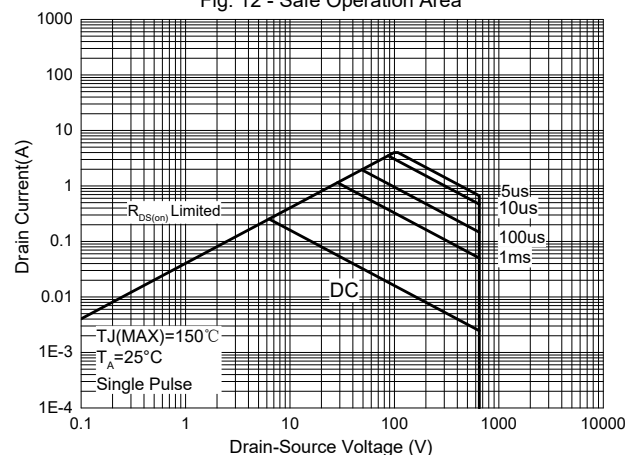
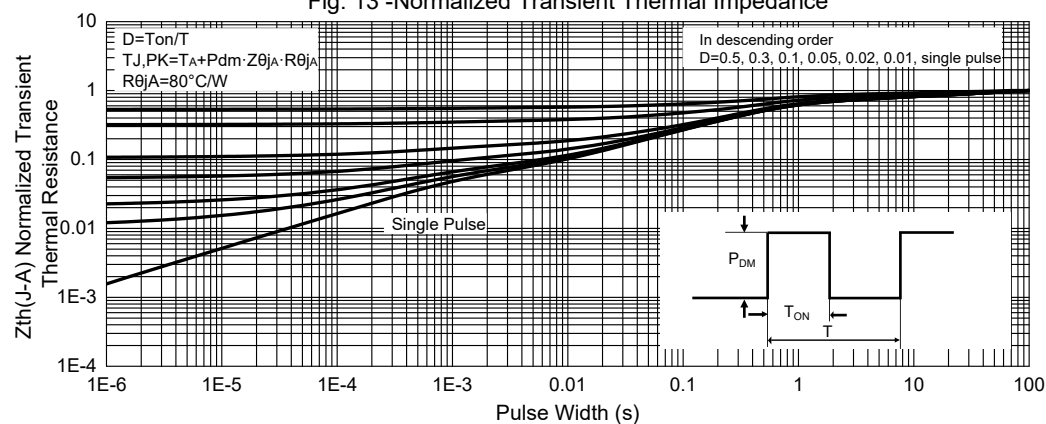


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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