

Features

- Advanced trench cell design
- ESD Protected up to 2KV (HBM)
- Surface Mount Package
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

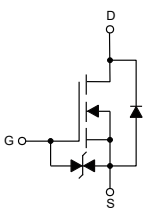
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 150°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	0.5	A
Pulsed Drain Current	I_{DM}	2	A
Total Power Dissipation	P_D	0.83	W

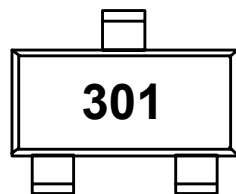
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

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 $T_A=25^\circ\text{C}$

Internal Structure and Marking Code

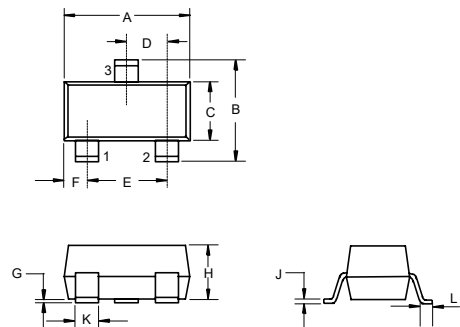


1. GATE
2. SOURCE
3. DRAIN



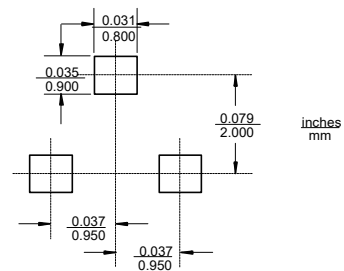
N-Channel MOSFET

SOT-23



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.5A$		630	750	m Ω
		$V_{GS}=2.5V, I_D=0.2A$		740	930	m Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=0.5A$			1.2	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		54		pF
Output Capacitance	C_{oss}			9.4		
Reverse Transfer Capacitance	C_{rss}			4.4		
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=0.5A$		0.8		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.06		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DD}=15V, I_D=0.5A,$ $R_{GEN}=3.9\Omega$		2.2		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			10		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

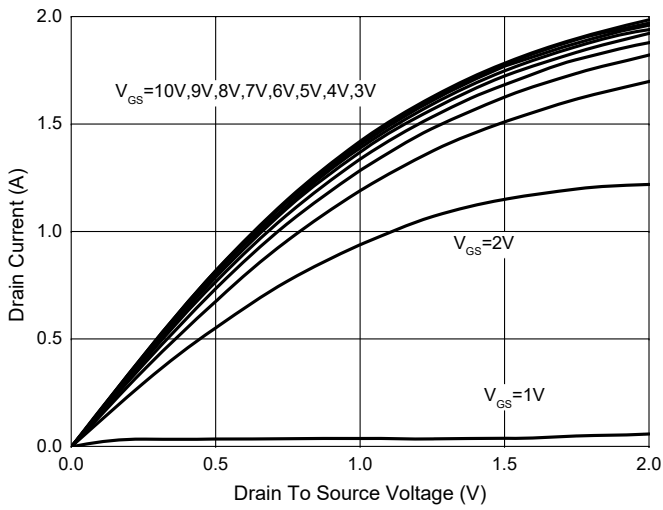


Fig. 2 - $R_{DS(ON)} - V_{GS}$

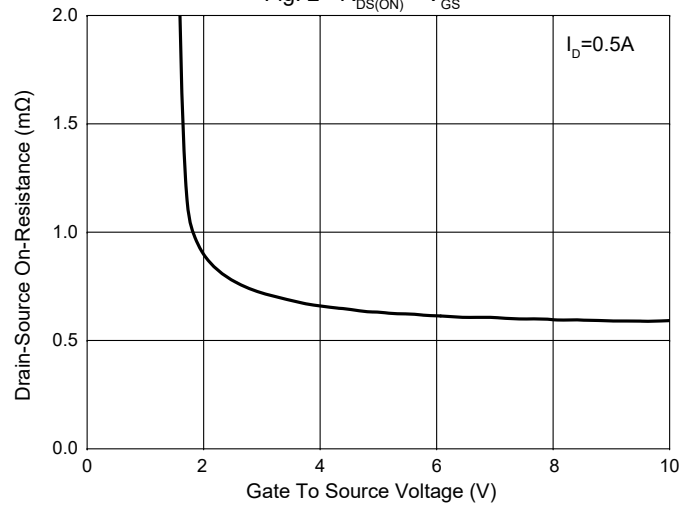


Fig. 3 - $R_{DS(ON)} - I_D$

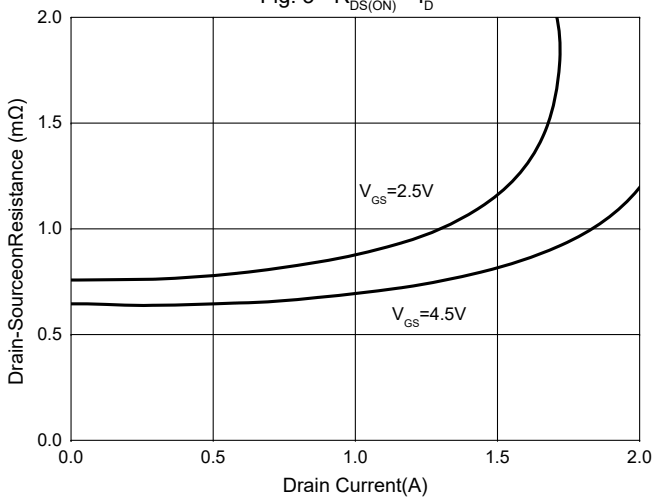


Fig. 4 - Normalized On Resistance Characteristics

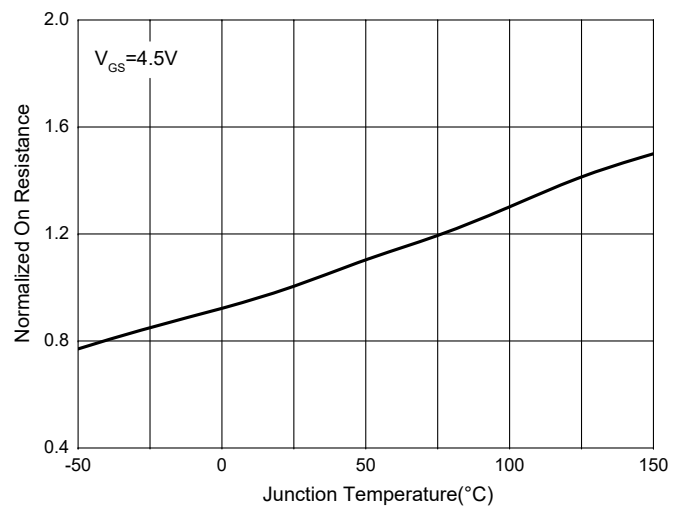


Fig. 5 - $I_S - V_{SD}$

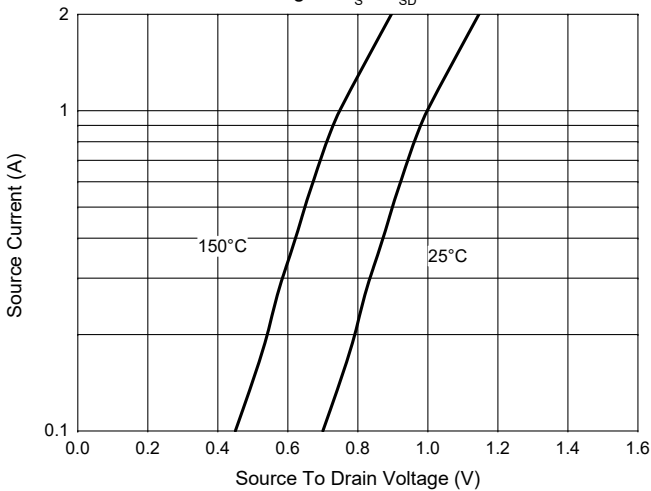
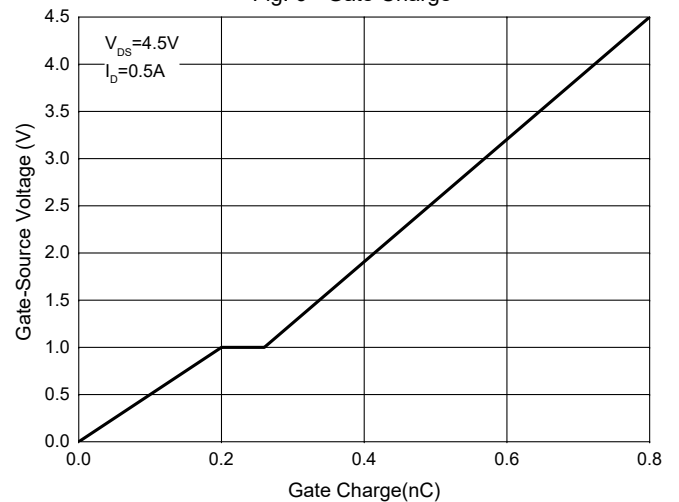


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Capacitance Characteristics

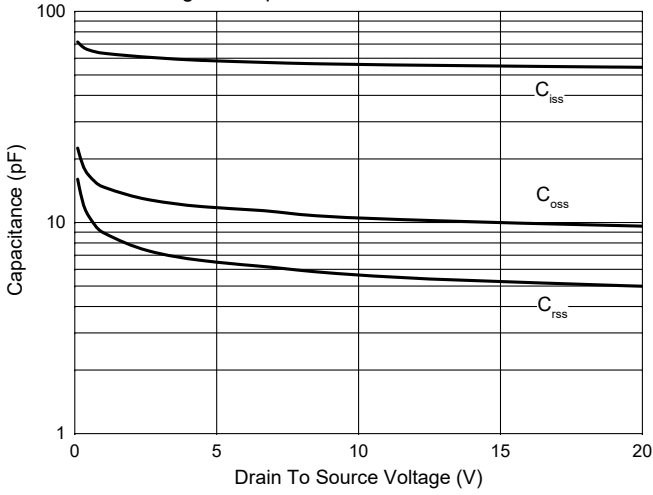


Fig. 8 - Safe Operation Area

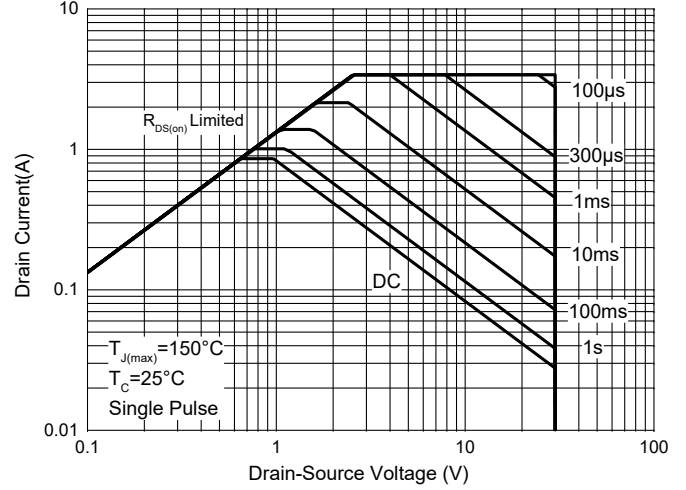
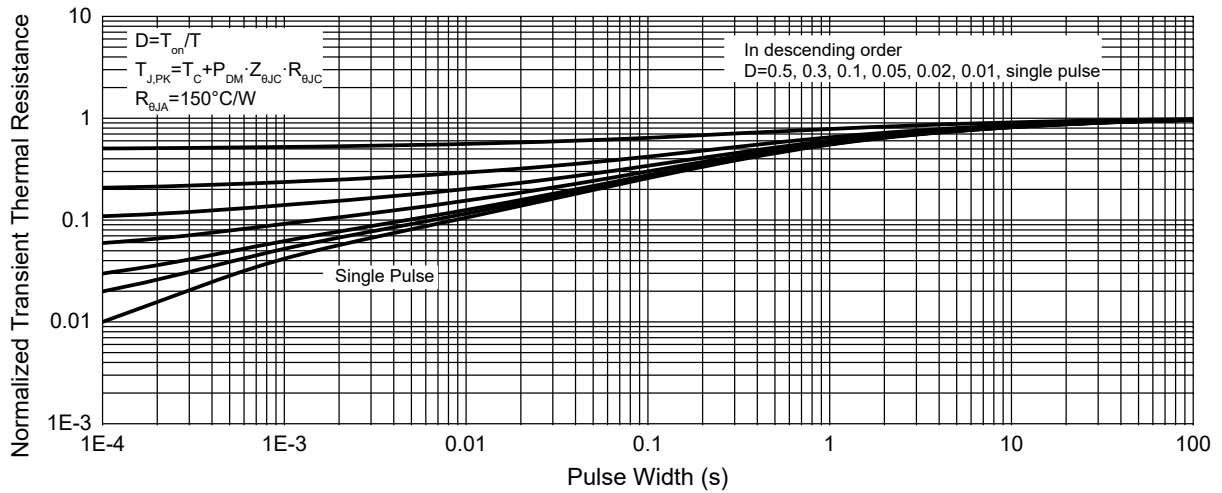


Fig. 9 - Normalized Transient Thermal Impedance



Ordering Information

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

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