

Features

- Trench MV MOSFET Technology
- 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

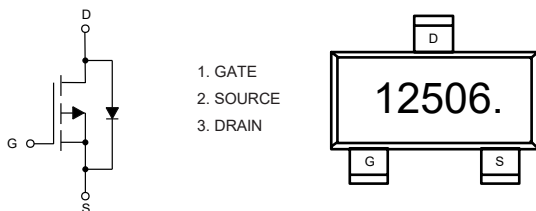
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 123°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	-2.0
		$T_A=100^\circ\text{C}$	-1.3
Pulsed Drain Current (Note 3)	I_{DM}	-8	A
Total Power Dissipation (Note 4)	P_D	1.0	W

Note:

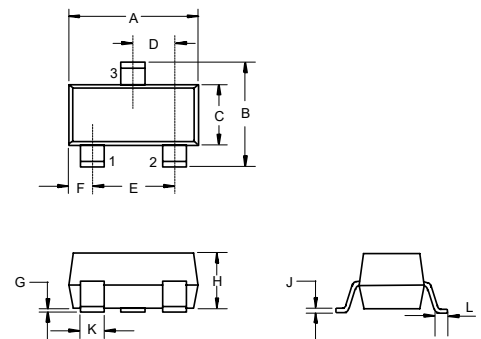
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds. The
2. Value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.
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



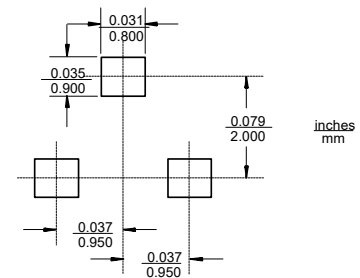
P-Channel MOSFET

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.090	0.104	2.30	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	0.004	0.01	0.10	
H	0.035	0.040	0.90	1.02	
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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.5	-2.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-2A$		98	125	m Ω
		$V_{GS}=-4.5V, I_D=-1A$		115	150	
Gate Resistance	R_g	f=1 MHz, Open drain		10		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-2.0	A
Body Diode Voltage	V_{SD}	$I_S=-2A, V_{GS}=0V$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_F=-2A, di/dt=100A/\mu s$		21.5		ns
Reverse Recovery Charge	Q_{rr}				21.3	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		697		pF
Output Capacitance	C_{oss}			37		
Reverse Transfer Capacitance	C_{rss}			32		
Total Gate Charge	Q_g	$V_{DD}=-30V, I_D=-2A$ $V_{GS}=-10V$		16.5		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-30V, V_{GS}=-10V, I_D=-2A$ $R_G=3\Omega$		6.5		ns
Turn-On Rise Time	t_r			3.0		
Turn-Off Delay Time	$t_{d(off)}$			28.7		
Turn-Off Fall Time	t_f			6.7		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

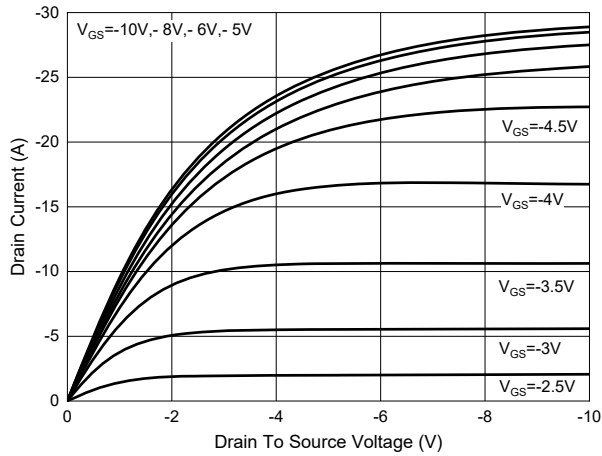


Fig. 2 - Transfer Characteristics

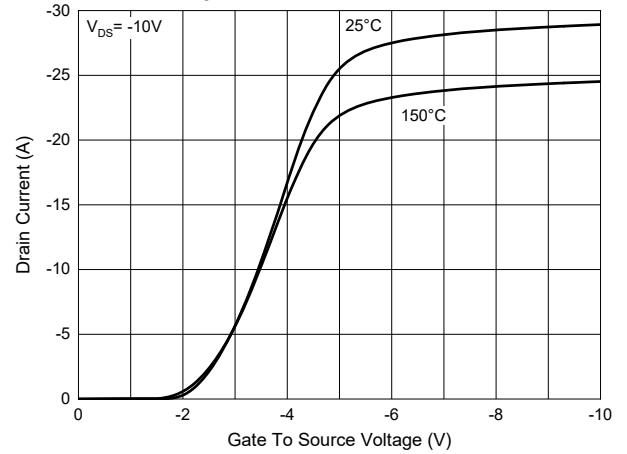


Fig.3- $R_{DS(ON)}-V_{GS}$

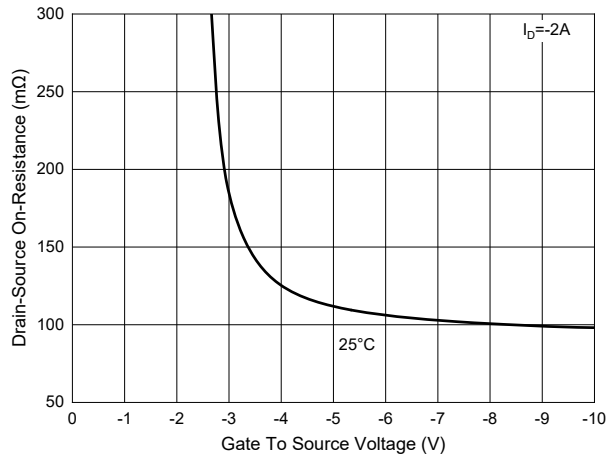


Fig.4- $R_{DS(ON)}-I_D$

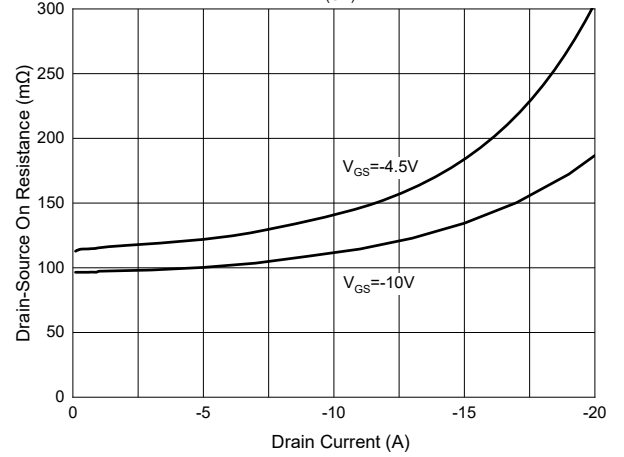


Fig. 5 - Capacitance Characteristics

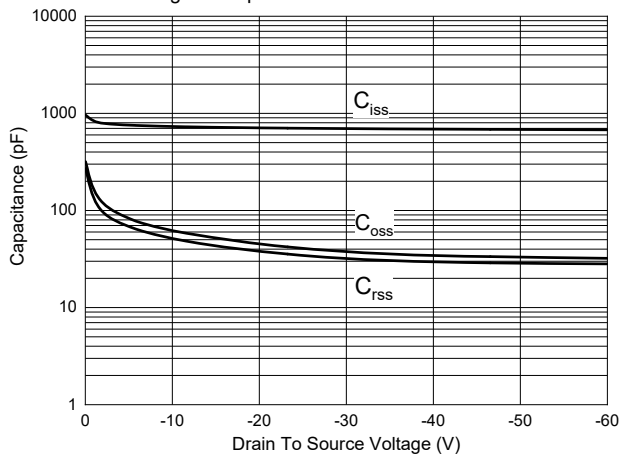
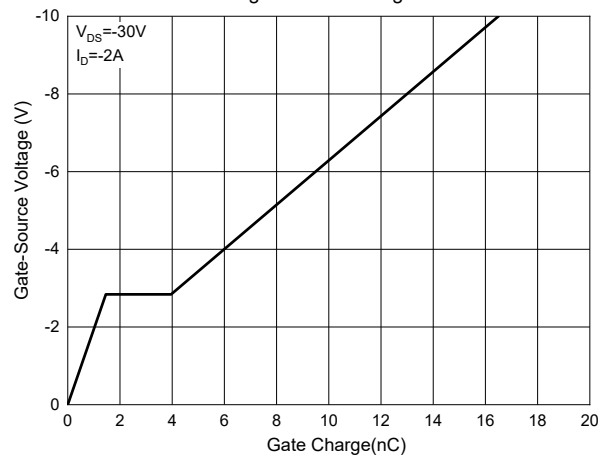
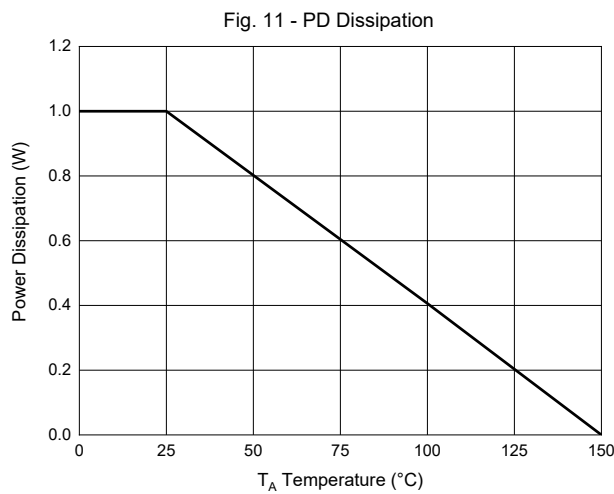
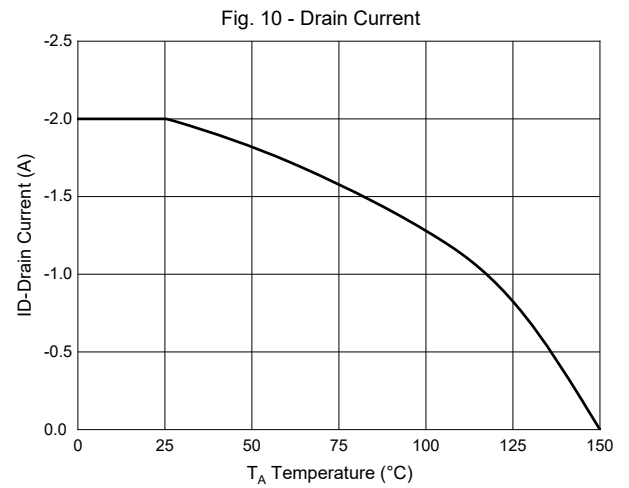
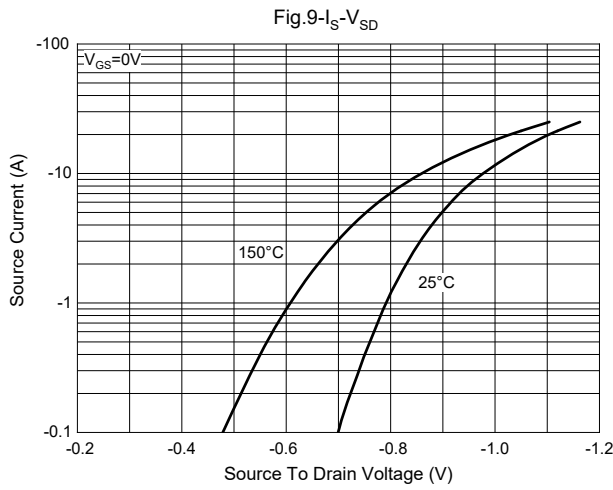
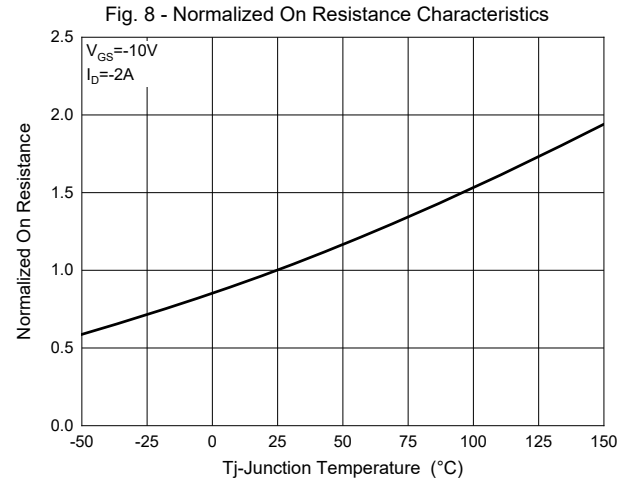
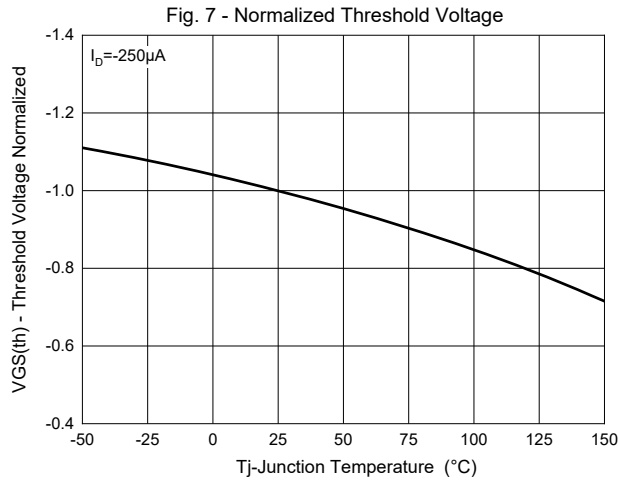


Fig. 6 - Gate Charge



Curve Characteristics



Curve Characteristics

Fig. 12 - Safe Operation Area

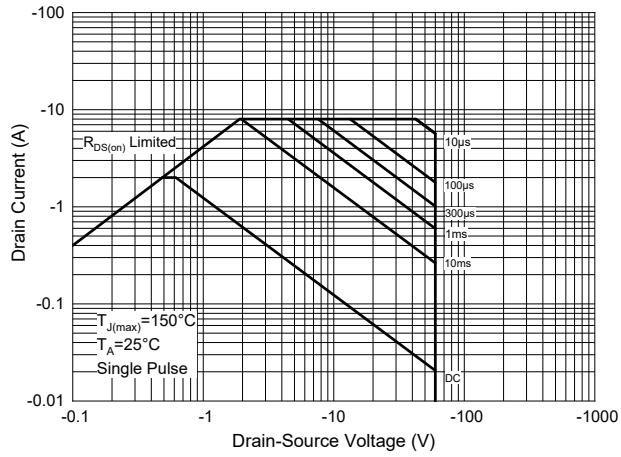
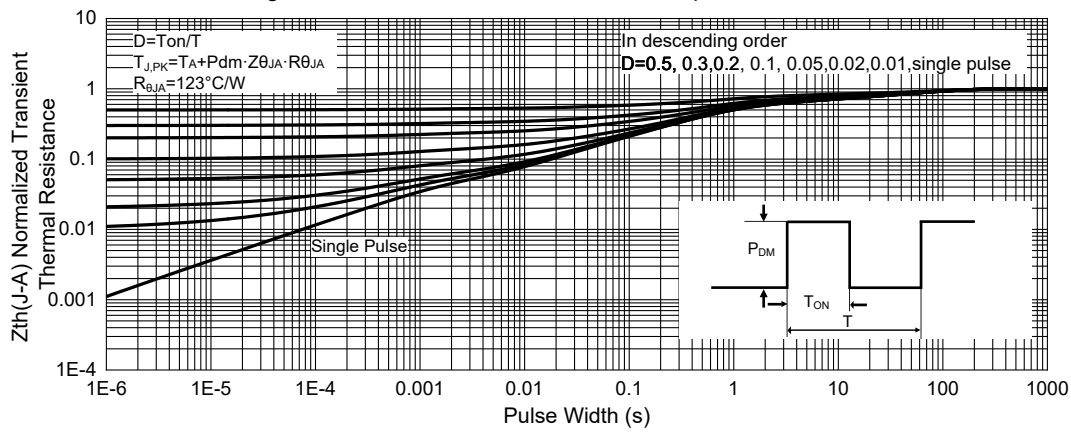


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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