

Features

- Trench MV MOSFET Technology
- ESD Protected Up To 2KV (HBM)
- Operated At Low Logic Level Gate Drive
- 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

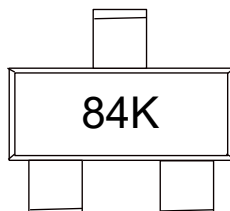
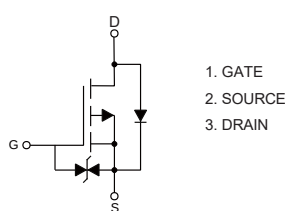
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 461°C/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	-60	V
Gate -Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	A
	$T_A = 100^\circ\text{C}$		
Plused Drain Current (Note3)	I_{DM}	-1.04	A
Power Dissipation (Note4)	P_D	0.27	W

Note:

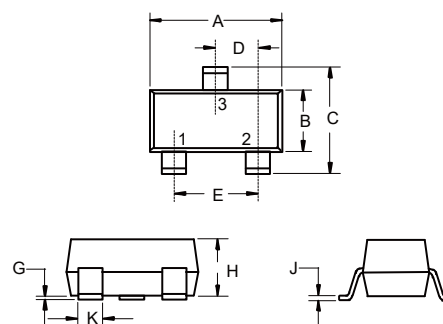
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A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



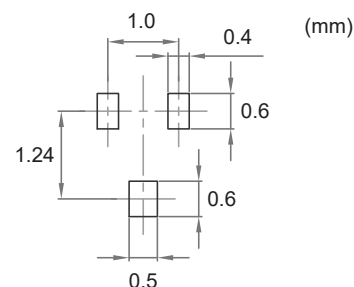
P-Channel MOSFET

SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

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-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.0	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V			-1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-0.2A		2.0	6	Ω
		V _{GS} =-4.5V, I _D =-0.1A		2.3	7	
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-0.1A		0.37		S
Gate Resistance	R _g	f=1 MHz, Open drain		1270		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				-0.26	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-0.2A			-1.3	V
Reverse Recovery Time	t _{rr}	I _F =-0.3A, dI _F /dt=100A/μs		13		ns
Reverse Recovery Charge	Q _{rr}			5.8		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1MHz		37		pF
Output Capacitance	C _{oss}			6		
Reverse Transfer Capacitance	C _{rss}			3.8		
Total Gate Charge	Q _g	V _{DS} =-25V, V _{GS} =-10V, I _D =-0.3A		2.2		nC
Gate-Source Charge	Q _{gs}			0.4		
Gate-Drain Charge	Q _{gd}			0.2		
Turn-On Delay Time	t _{d(on)}	V _{DD} =-25V, V _{GS} =-10V, R _G =3.9Ω, I _D =-0.3A		8.3		ns
Turn-On Rise Time	t _r			4		
Turn-Off Delay Time	t _{d(off)}			39		
Turn-Off Fall Time	t _f			20		

Curve Characteristics

Fig.1 - Typical Output Characteristics

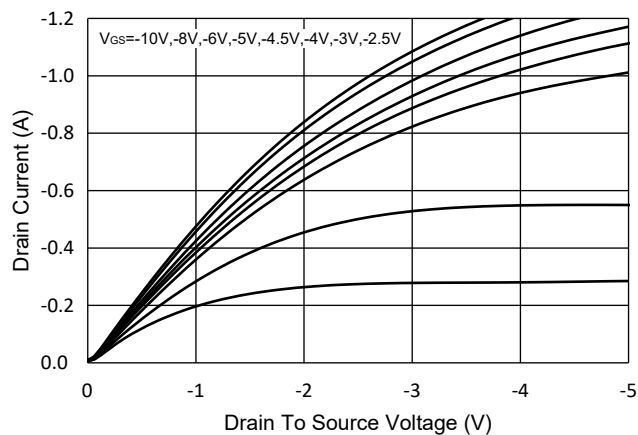


Fig.2 - Transfer Characteristic

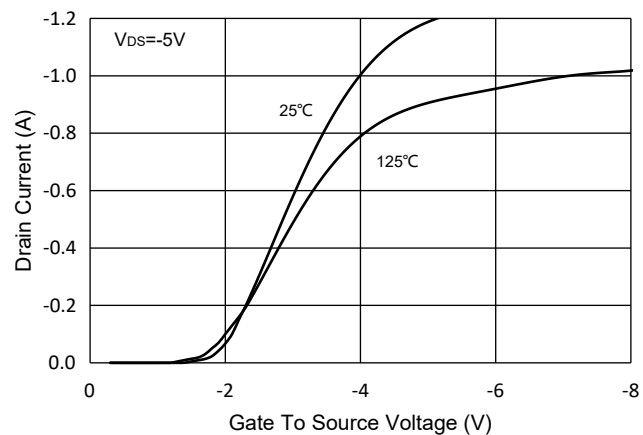


Fig.3 - $R_{DS(ON)}$ - V_{GS}

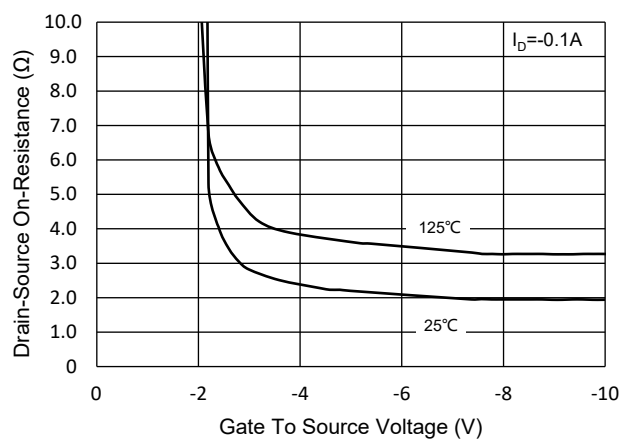


Fig.4 - $R_{DS(ON)}$ - I_D

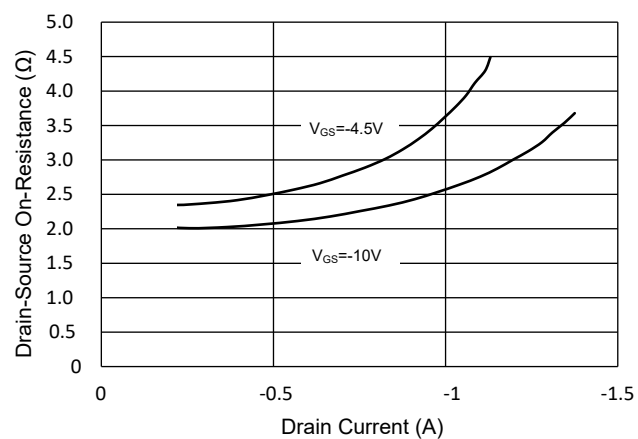


Fig.5 - Capacitance Characteristics

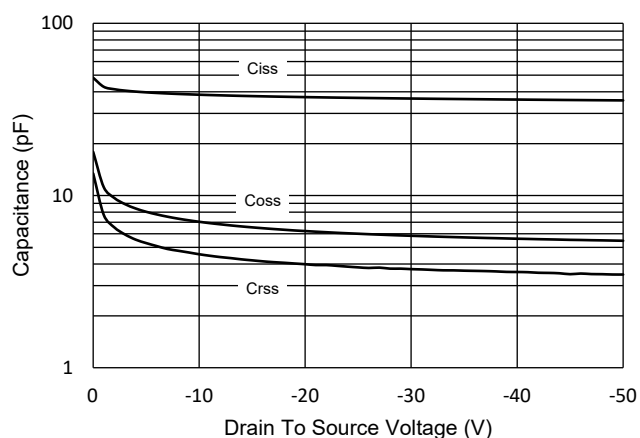
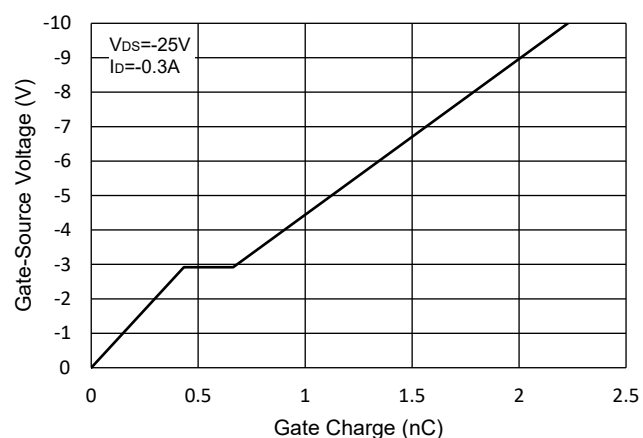


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

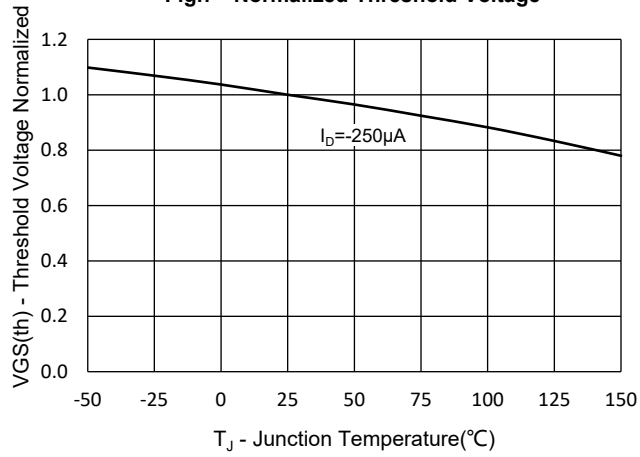


Fig.8 - Normalized On Resistance Characteristics

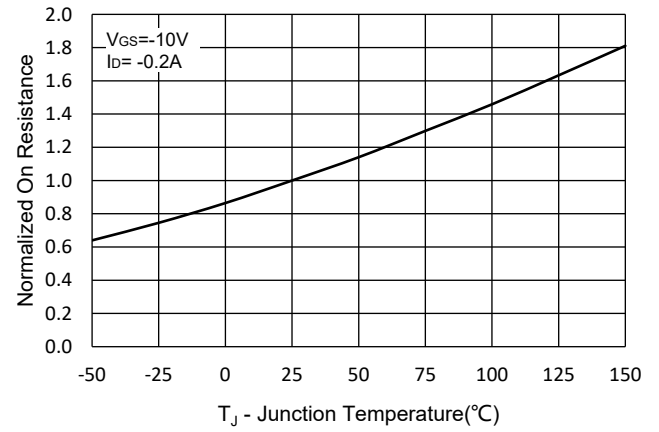


Fig.9 - I_S - V_{SD}

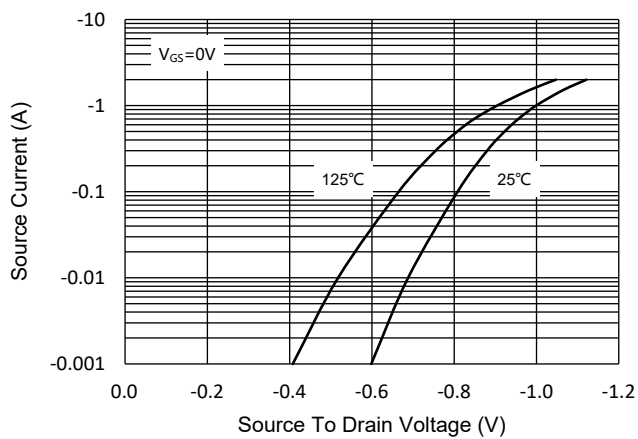


Fig.10 - Drain Current

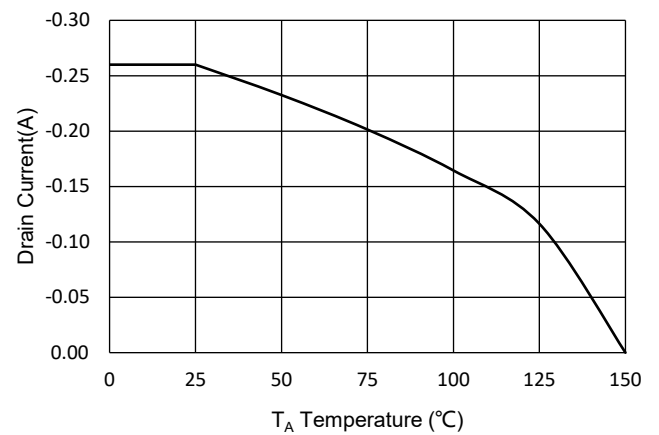
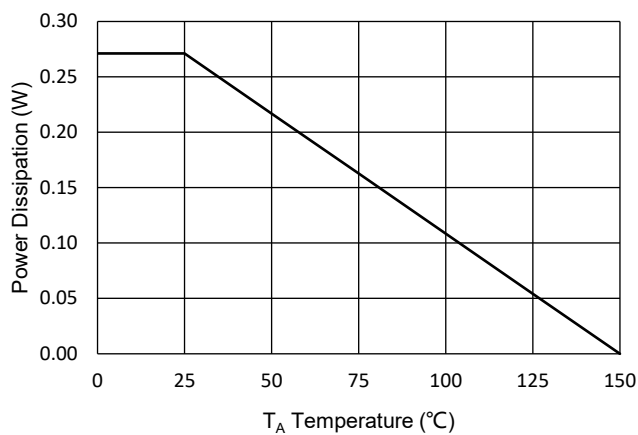


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

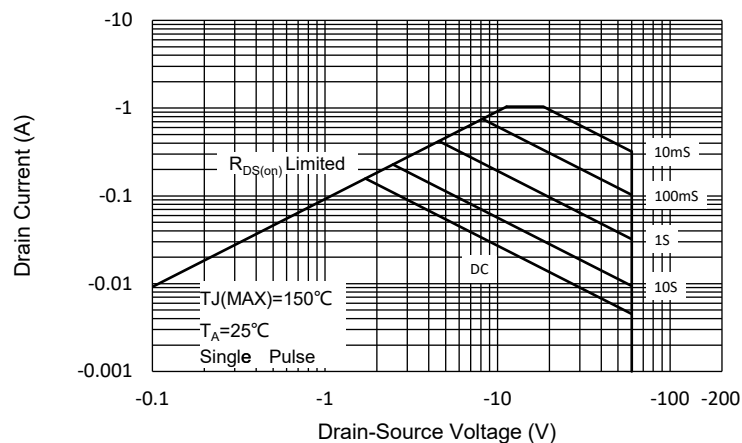
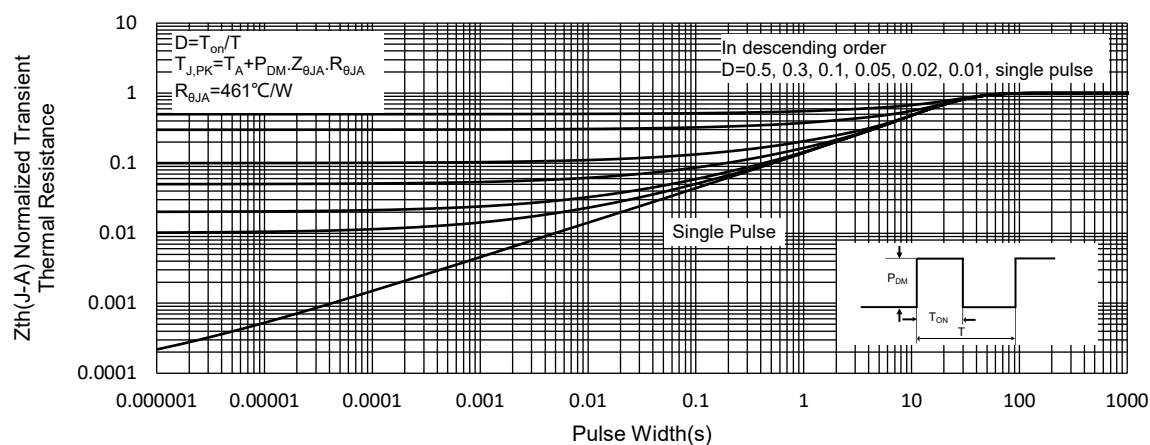


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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