Features

- Trench LV MOSFET Technology
- ESD Protected Up To 2KV (HBM)
- Fast Switching Speed
- 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)

N-Channel MOSFET

Maximum Ratings

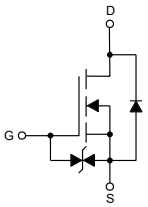
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 500°C/W Junction to Ambient(Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	V
Drain Current-Continuous	T_A=25°C	I_D	0.75	A
	T_A=70°C		0.6	
Drain Current-Pulsed(Note 3)		I_{DM}	3	A
Power Dissipation(Note 4)		P_D	0.25	W

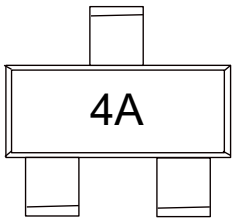
Note:

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 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°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.

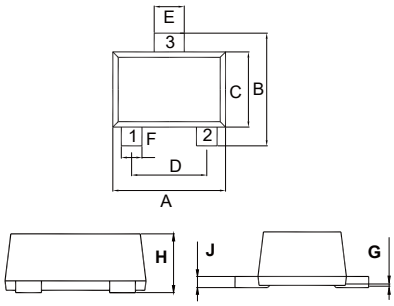
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN

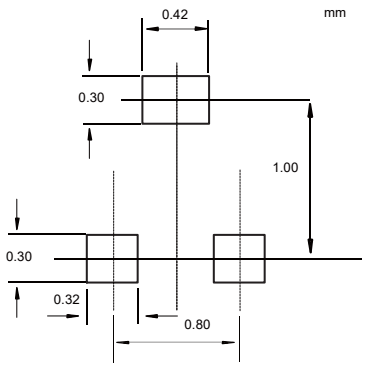


SOT-723



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.043	0.051	1.10	1.30	
B	0.043	0.051	1.10	1.30	
C	0.028	0.035	0.70	0.90	
D	0.031		0.80		TYP.
E	0.009	0.017	0.22	0.42	
F	0.005	0.013	0.12	0.32	
G	0.000	0.002	0.00	0.05	
H	0.017	0.021	0.43	0.54	
J	0.003	0.006	0.08	0.15	

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25℃ 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	20			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.35	0.7	1.1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=500mA		190	300	mΩ
		V_{GS}=2.5V, I_D=400mA		280	400	mΩ
		V_{GS}=1.8V, I_D=200mA		480	700	mΩ
Forward transconductance	g_{FS}	V_{DS}=10V, I_D=500mA		1.6		S
Gate Resistance	R_g	f=1 MHz, Open drain		37		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				0.75	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=500mA			1.2	V
Reverse Recovery Time	t_{rr}	I_F=0.5A, dI_F/dt=100A/μs		12.5		ns
Reverse Recovery Charge	Q_{rr}			0.7		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=16V,V_{GS}=0V,f=1MHz		27		pF
Output Capacitance	C_{oss}			9.5		
Reverse Transfer Capacitance	C_{rss}			4.6		
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=1A		0.78		nC
Gate-Source Charge	Q_{gs}			0.27		
Gate-Drain Charge	Q_{gd}			0.18		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=10V, I_{DS}=0.5A,R_G=10Ω		3		ns
Turn-On Rise Time	t_r			19		
Turn-Off Delay Time	$t_{d(off)}$			10.8		
Turn-Off Fall Time	t_f			24		

Curve Characteristics

Fig.1 - Typical Output Characteristics

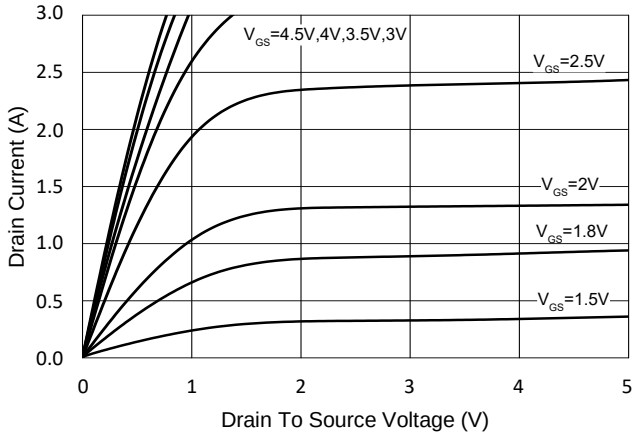


Fig.2 - Transfer Characteristic

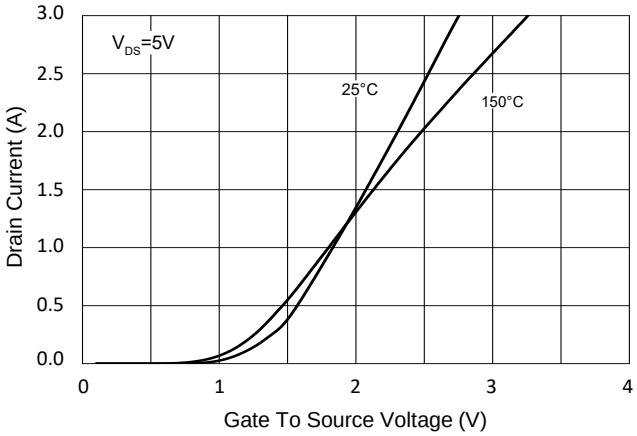


Fig.3 - $R_{DS(ON)}$ - V_{GS}

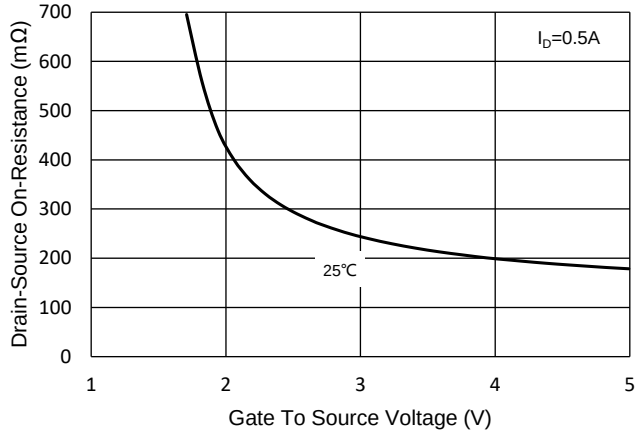


Fig.4 - $R_{DS(ON)}$ - I_D

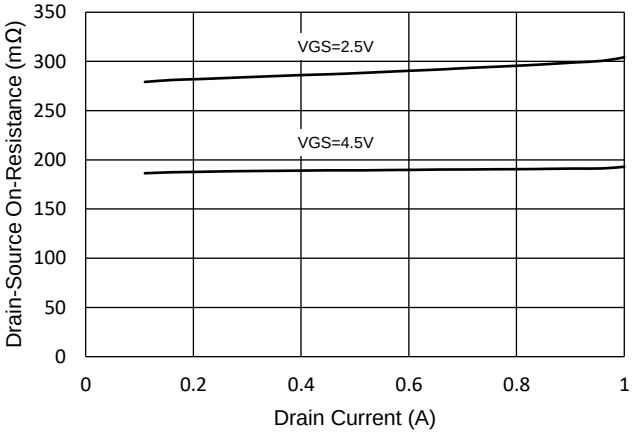


Fig.5 - Capacitance Characteristics

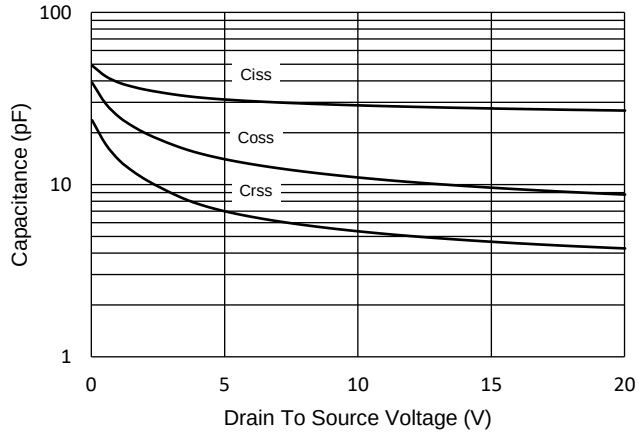
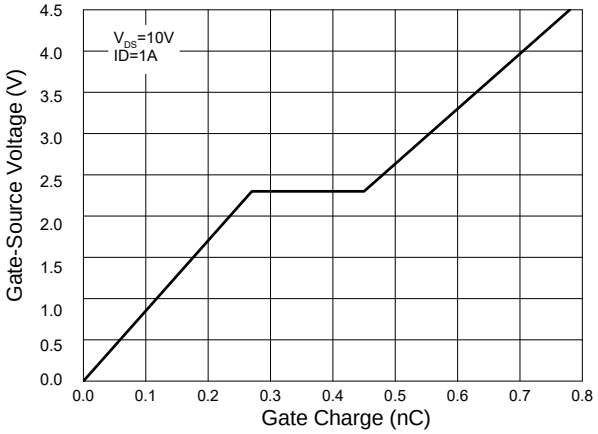


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

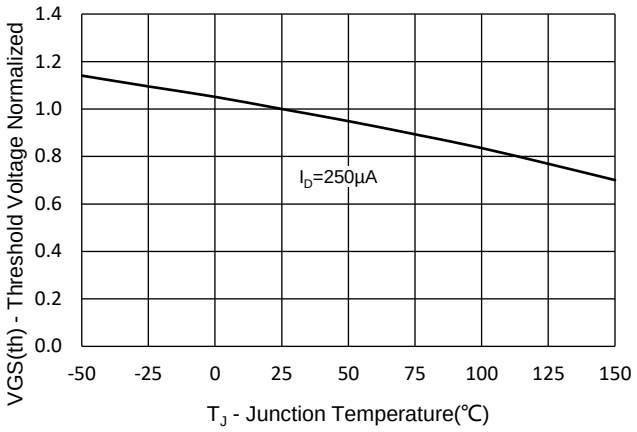


Fig.8 - Normalized On Resistance Characteristics

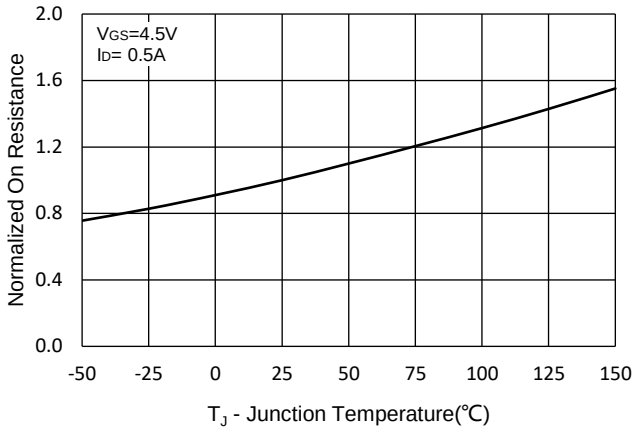


Fig.9 - I_S - V_{SD}

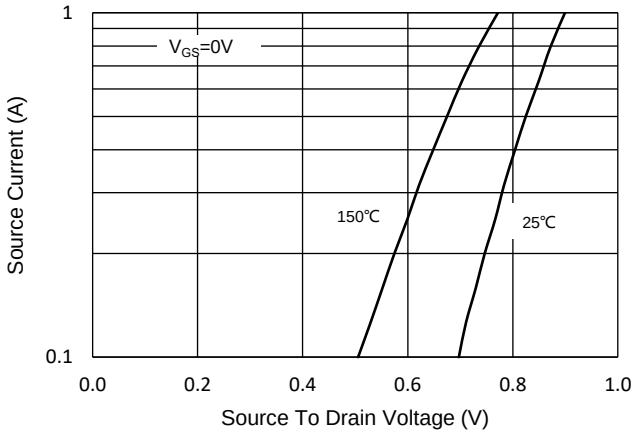


Fig.10 - Drain Current

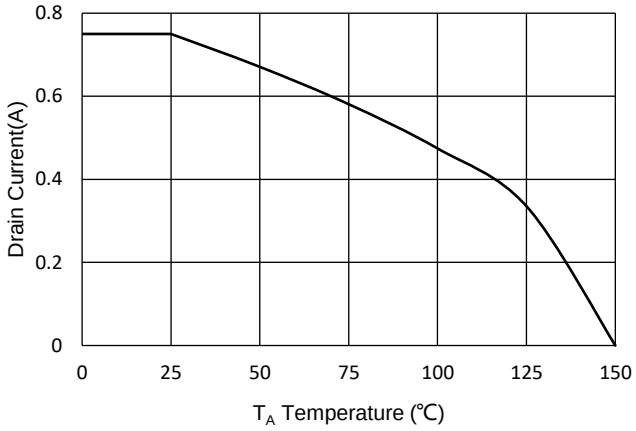
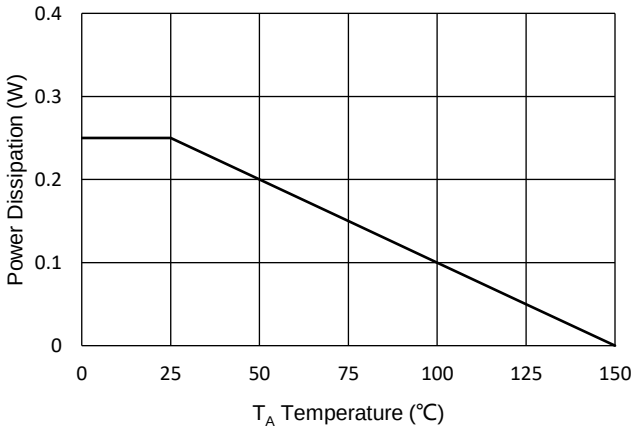


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

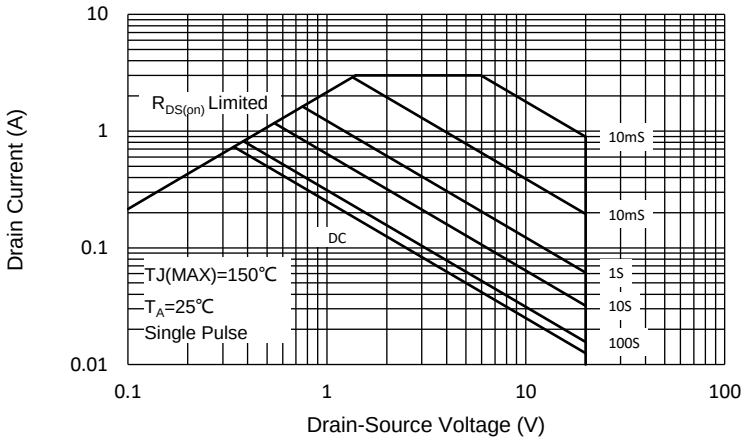
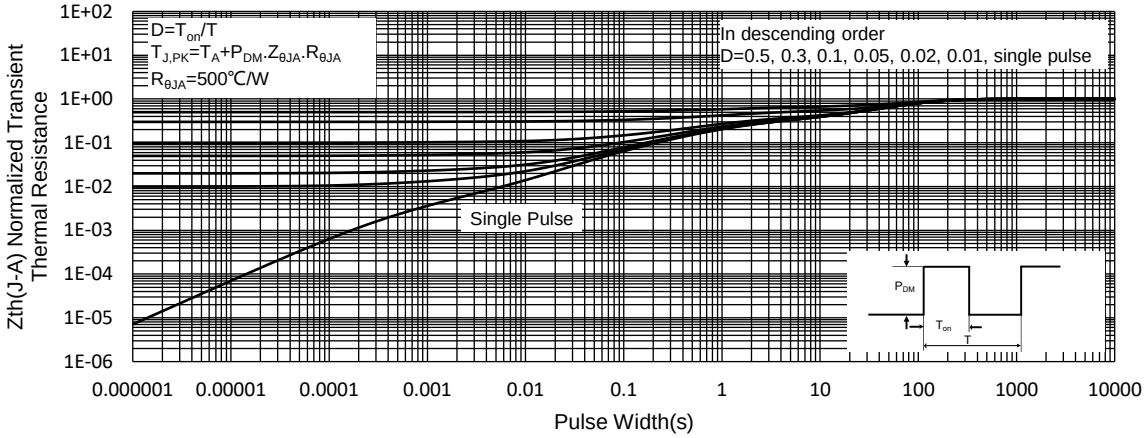


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:8Kpcs/Reel

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