

Features

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

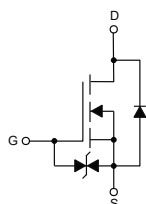
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 130°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	$T_A=25^{\circ}\text{C}$	I_D	A
	$T_A=100^{\circ}\text{C}$		
Pulsed Drain Current (Note 3)	I_{DM}	3.2	A
Total Power Dissipation (Note 4)	P_D	0.96	W

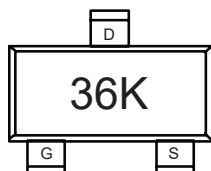
Note:

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 the minimum recommended pad size, 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

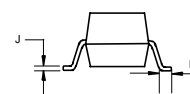
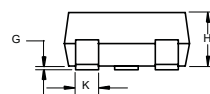
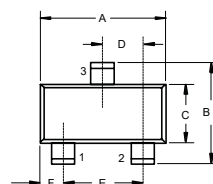


1. GATE
2. SOURCE
3. DRAIN



N-Channel MOSFET

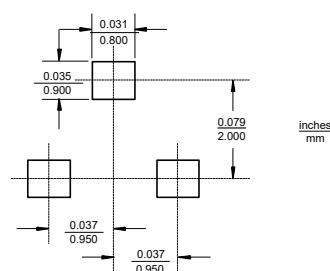
SOT-23



DIMENSIONS

DIM	INCHES		MM		NOTE
	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 (Ta=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	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.0	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =550mA		195	300	mΩ
		V _{GS} =2.5V, I _D =450mA		245	400	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =800mA		2.2		S
Gate Resistance	R _g	f=1 MHz, Open drain		220		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				800	mA
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =550mA			1.2	V
Reverse Recovery Time	t _{rr}	I _F =550mA, dI _F /dt=100A/μs		20		ns
Reverse Recovery Charge	Q _{rr}			6		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHz		44		pF
Output Capacitance	C _{oss}			8.5		
Reverse Transfer Capacitance	C _{rss}			5.8		
Total Gate Charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =550mA		0.61		nC
Gate-Source Charge	Q _{gs}			0.07		
Gate-Drain Charge	Q _{gd}			0.18		
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V,V _{GS} =4.5V, R _G =2.7Ω, I _D =550mA		6.7		ns
Turn-On Rise Time	t _r			18		
Turn-Off Delay Time	t _{d(off)}			50		
Turn-Off Fall Time	t _f			30		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

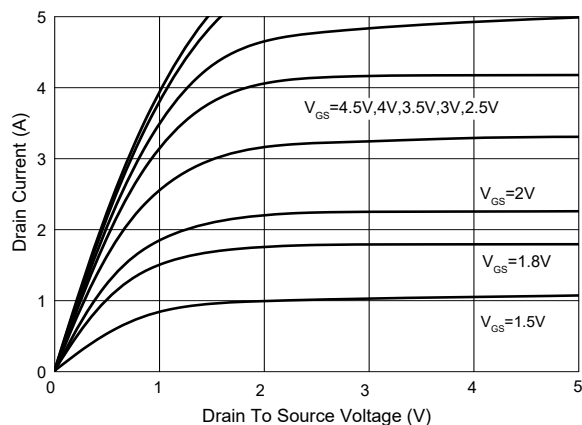


Fig.2 - Transfer Characteristic

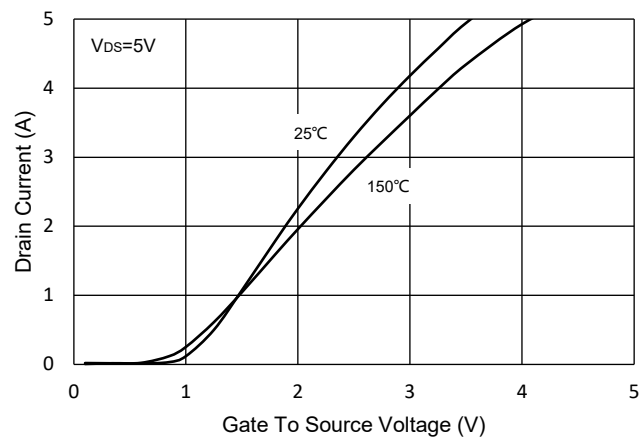


Fig.3 - $R_{DS(ON)}$ - V_{GS}

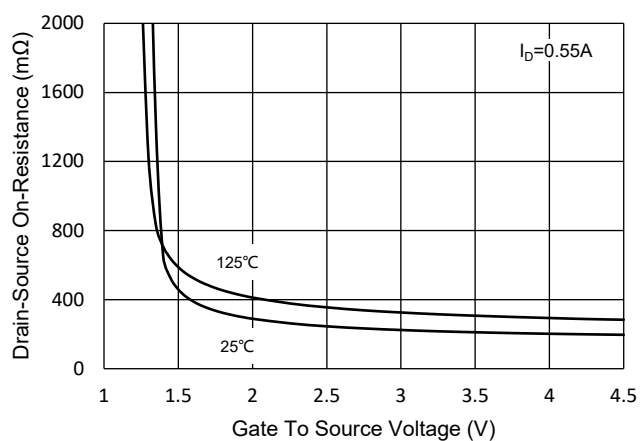


Fig.4 - $R_{DS(ON)}$ - I_D

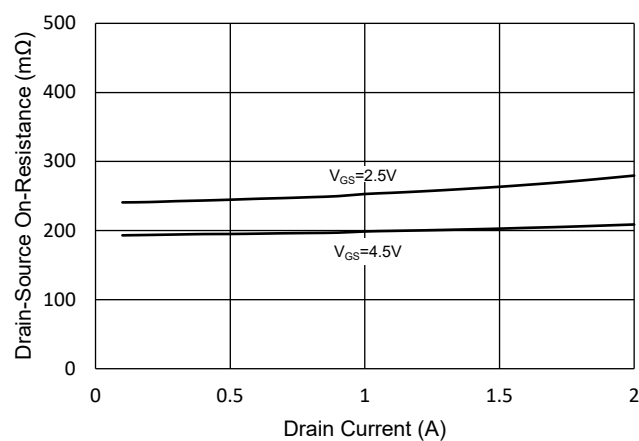


Fig.5 - Capacitance Characteristics

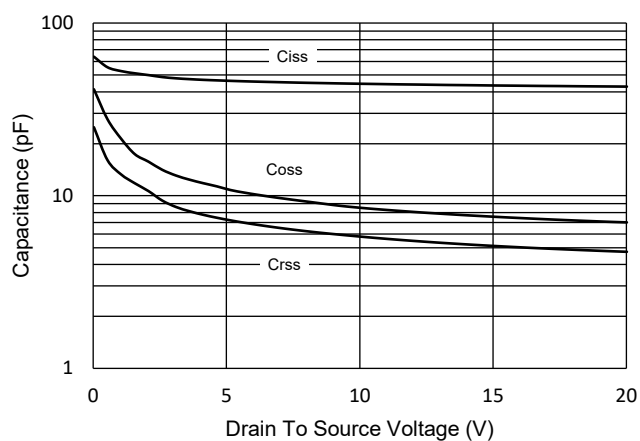
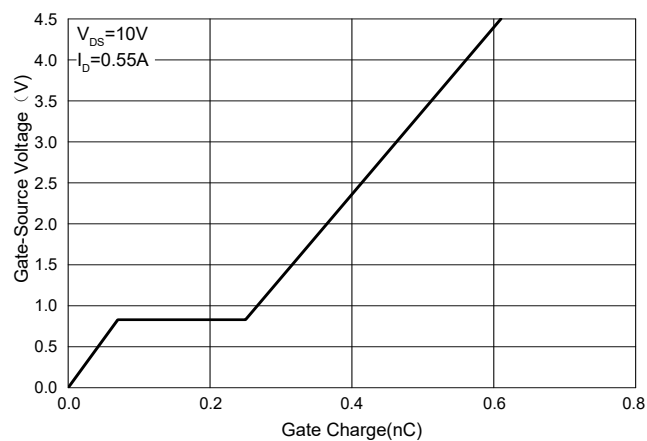


Fig. 6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

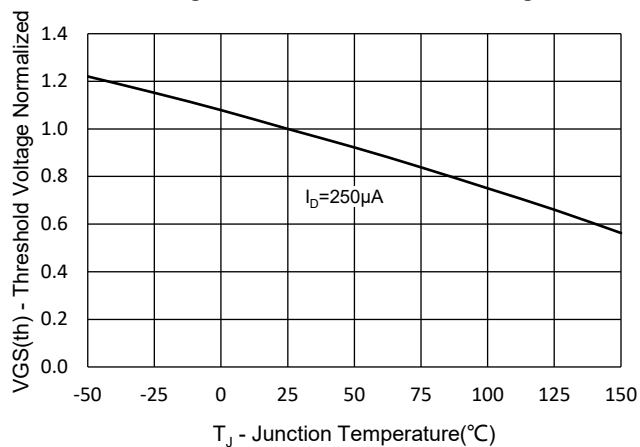


Fig.8 - Normalized On Resistance Characteristics

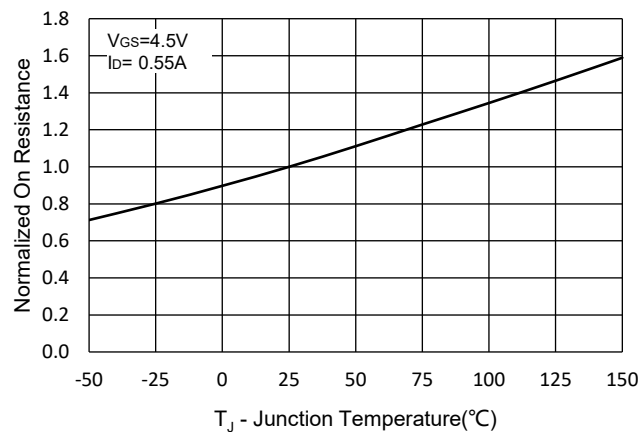


Fig.9 - $I_S - V_{SD}$

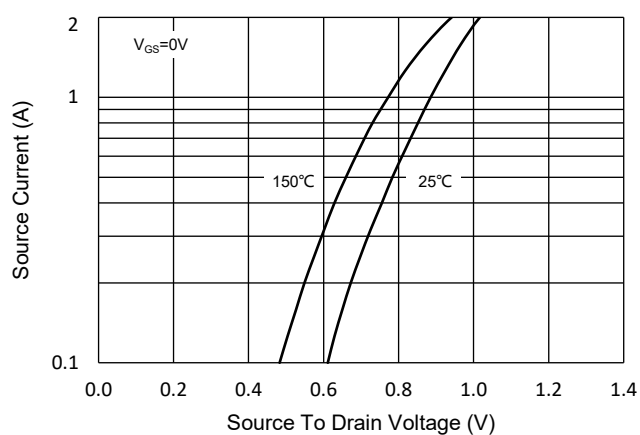


Fig.10 - Drain Current

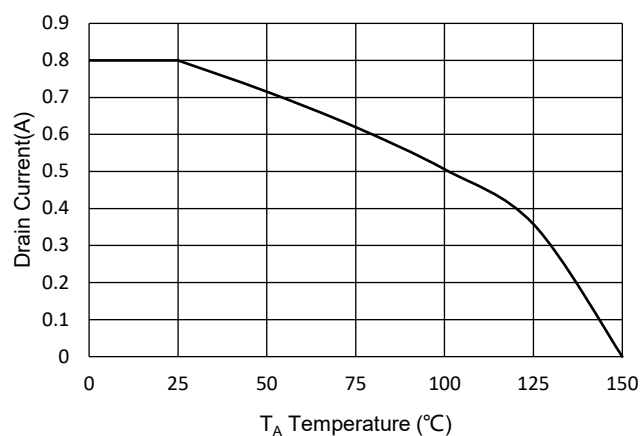
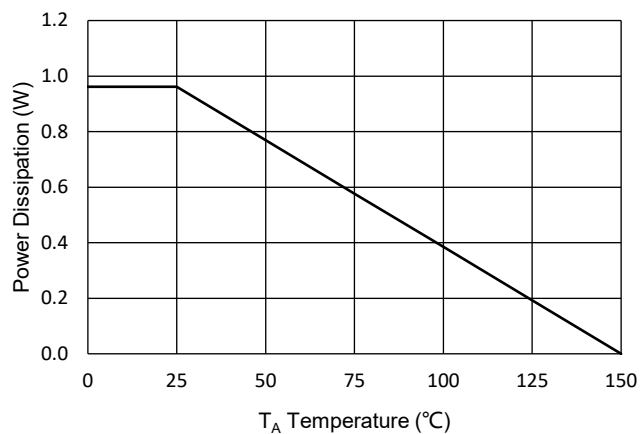


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

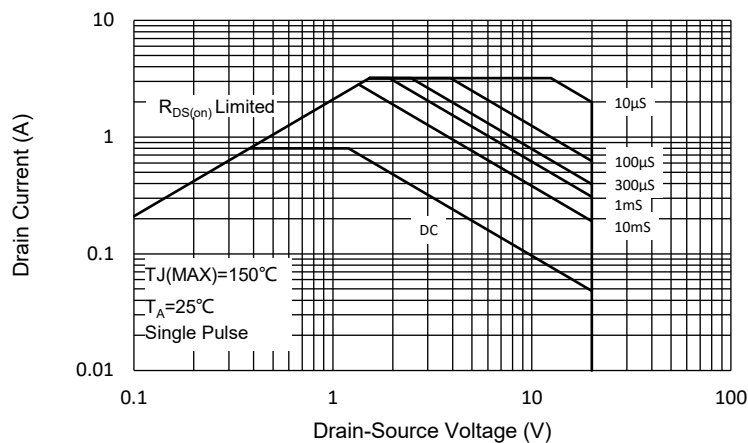
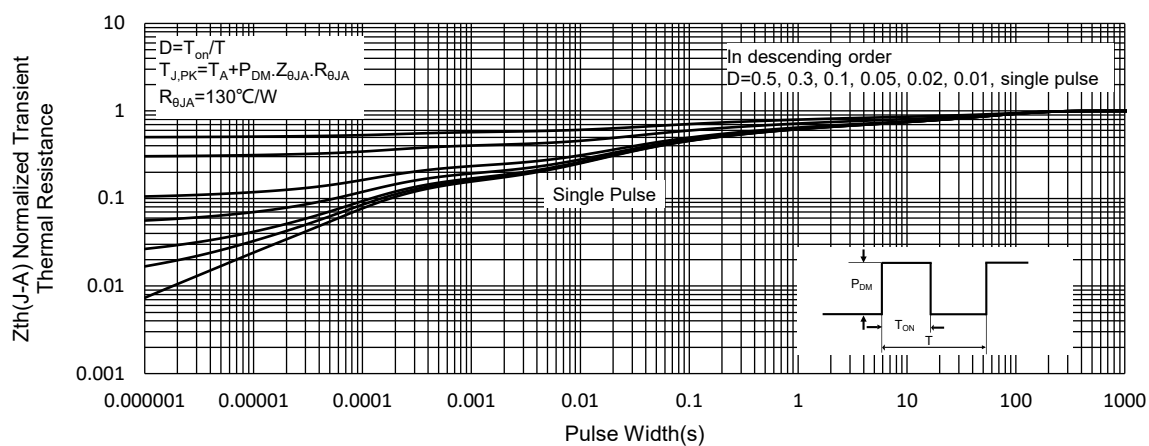


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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