Features

- Trench LV 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)

P-Channel MOSFET

Maximum Ratings

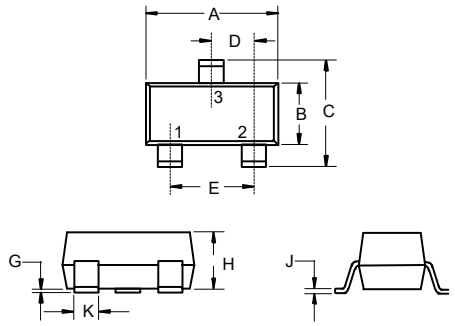
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 250°C/W Junction to Ambient(Note2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Volltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	-0.66	A
	T_A=100°C		-0.41	
Pulsed Drain Current(Note3)		I_{DM}	-2.6	A
Total Power Dissipation(Note4)		P_D	0.5	W

Note:

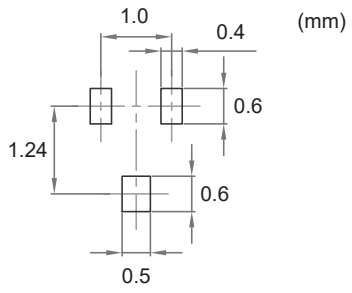
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2 oz copper, in a still air environment with T_A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

SOT-523

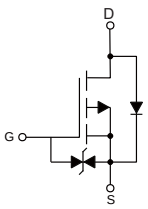


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

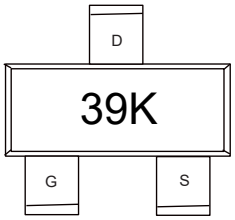
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



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-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.35	-0.6	-1.1	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V			±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-1000mA		0.38	0.52	Ω
		V_{GS}=-2.5V, I_D=-800mA		0.55	0.7	
		V_{GS}=-1.8V, I_D=-500mA		0.76	1.5	
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-540mA		1.2		S
Gate Resistance	R_g	f=1 MHz, Open drain		70		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-0.66	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-500mA			-1.2	V
Reverse Recovery Time	t_{rr}	I_F=-1A, dI_F/dt=100A/μs		17		ns
Reverse Recovery Charge	Q_{rr}			8		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-16V,V_{GS}=0V,f=1MHz		72		pF
Output Capacitance	C_{oss}			12		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge	Q_g	V_{DS}=-10V,V_{GS}=-4.5V,I_D=-1A		1		nC
Gate-Source Charge	Q_{gs}			0.1		
Gate-Drain Charge	Q_{gd}			0.45		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-10V,V_{GS}=-4.5V, R_G=2.7Ω, I_D=-1A		9		ns
Turn-On Rise Time	t_r			37		
Turn-Off Delay Time	$t_{d(off)}$			22		
Turn-Off Fall Time	t_f			41		

Curve Characteristics

Fig.1 - Typical Output Characteristics

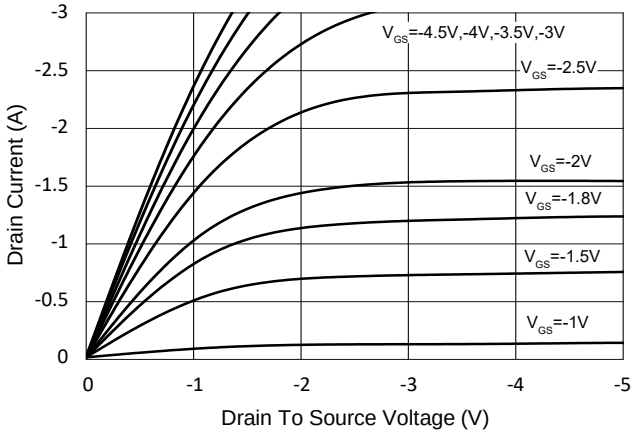


Fig.2 - Transfer Characteristic

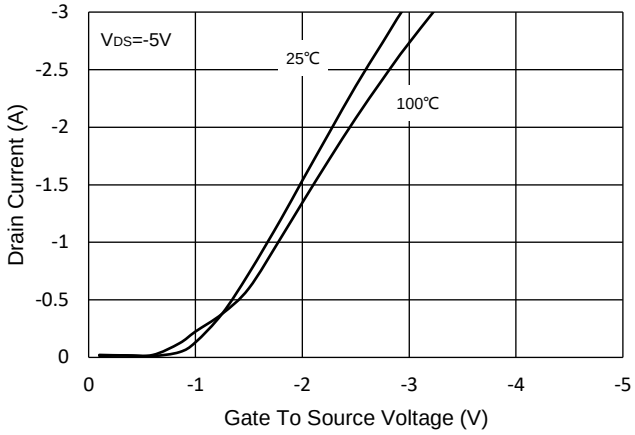


Fig.3 - $R_{DS(ON)}$ - V_{GS}

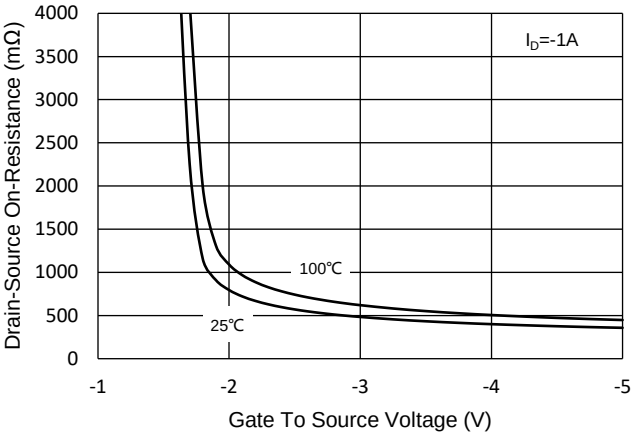


Fig.4 - $R_{DS(ON)}$ - I_D

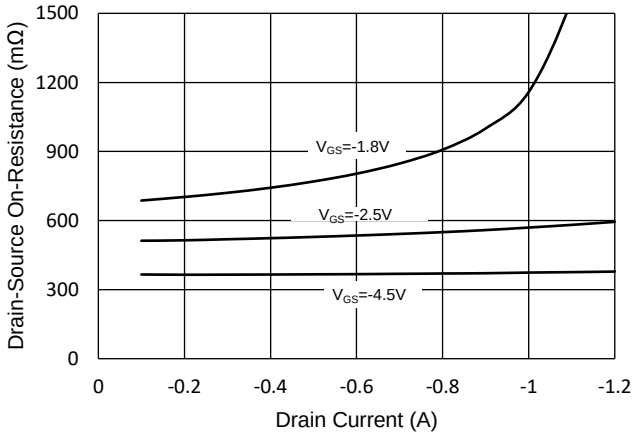


Fig.5 - Capacitance Characteristics

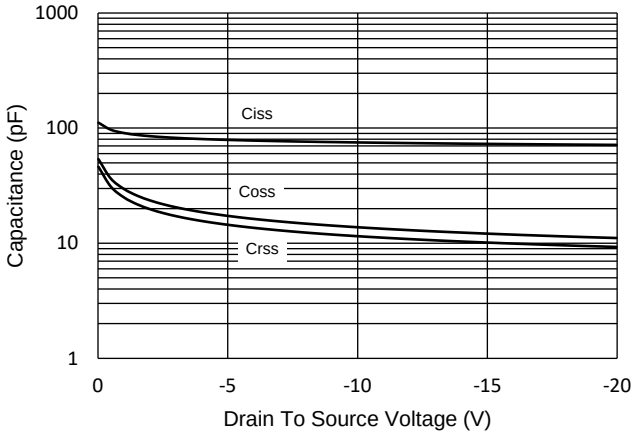
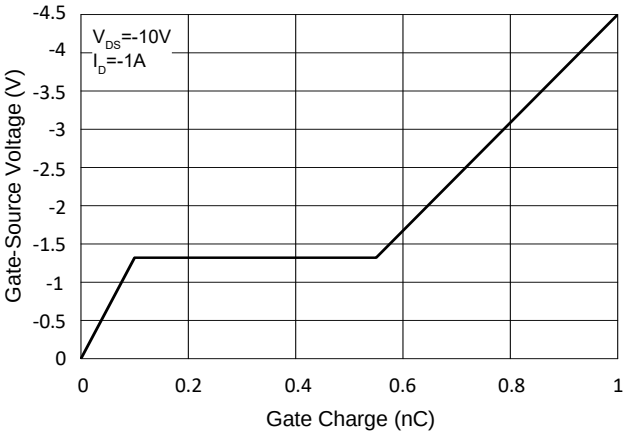


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

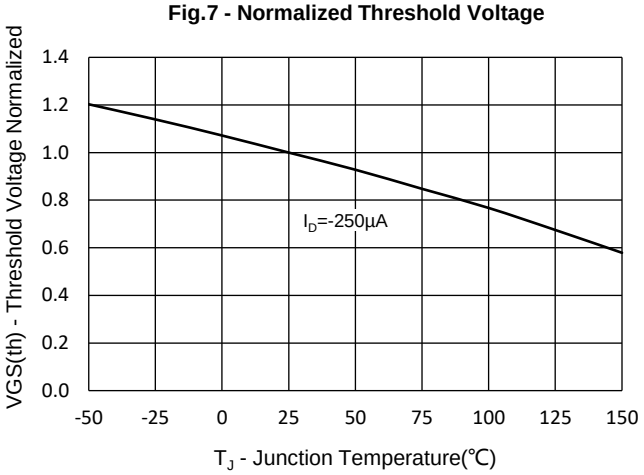


Fig.8 - Normalized On Resistance Characteristics

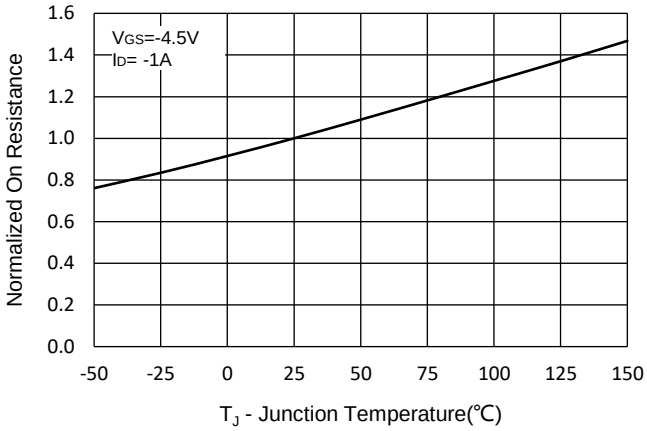


Fig.9 - I_S - V_{SD}

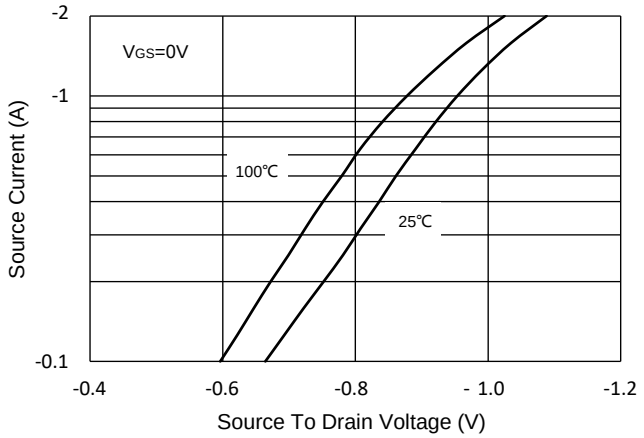


Fig.10 - Drain Current

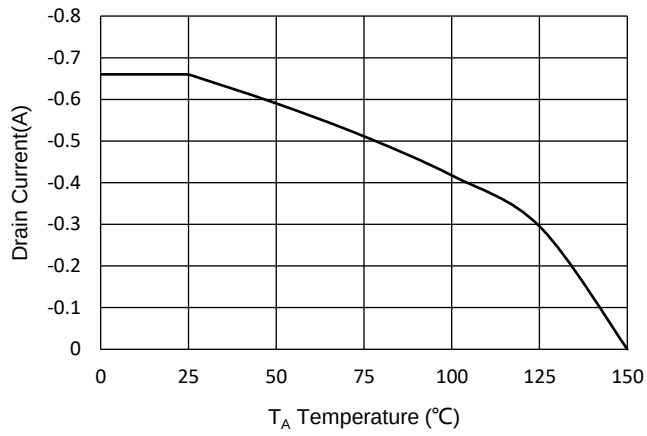
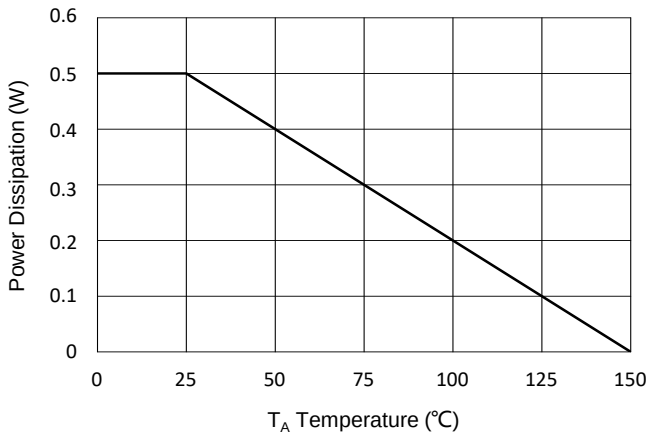


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

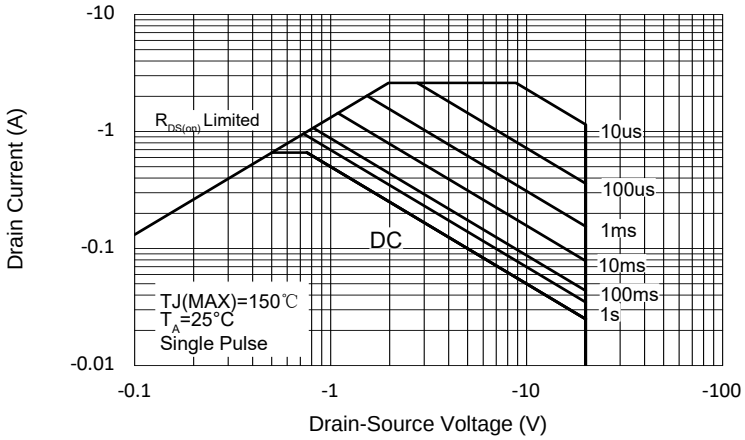
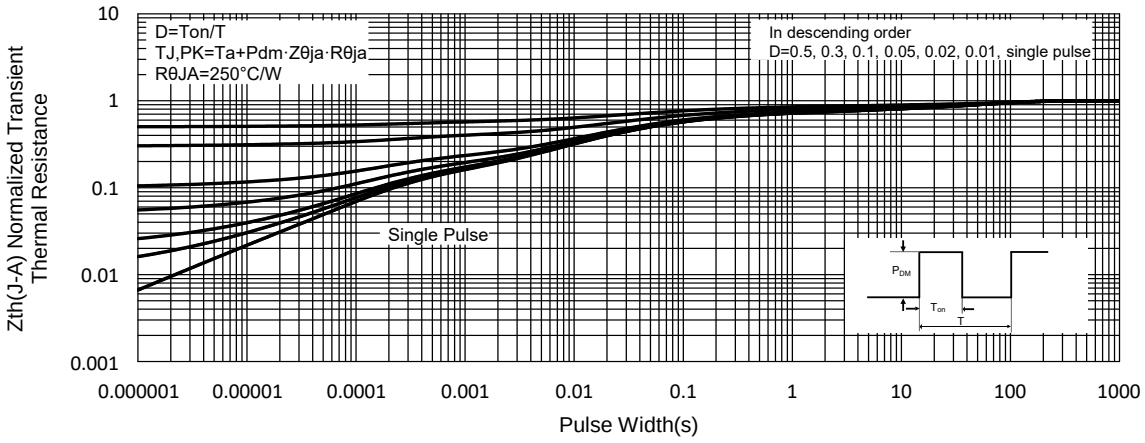


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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