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)

N-Channel MOSFET

Maximum Ratings

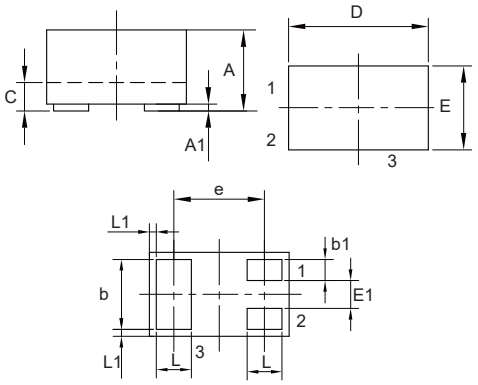
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 180°C/W Junction to Ambient(Note2)

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	1.1	A
	T_A=100°C		0.7	
Pulsed Drain Current(Note 3)		I_{DM}	4.4	A
Total Power Dissipation (Note 4)		P_D	0.7	W

Note:

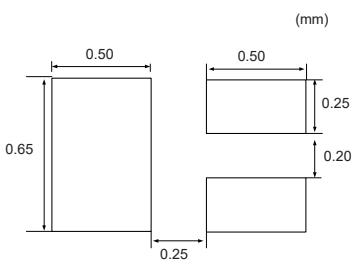
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

DFN1006-3

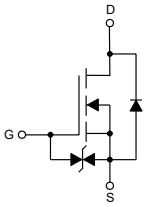


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.015	0.020	0.40	0.50	
A1	0.000	0.002	0.00	0.05	
b	0.018	0.022	0.45	0.55	
b1	0.004	0.008	0.10	0.20	
c	0.005	0.007	0.12	0.18	
D	0.037	0.042	0.95	1.075	
E	0.022	0.026	0.55	0.675	
E1	0.006	0.010	0.15	0.25	
e	0.026		0.65		TYP.
L	0.008	0.012	0.20	0.30	
L1	0.0002		0.05		TYP.

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-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
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	0.7	0.9	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=500mA		175	350	mΩ
		V_{GS}=2.5V, I_D=400mA		260	450	
		V_{GS}=1.8V, I_D=200mA		440	700	
Gate Resistance	R_g	f=1 MHz, Open drain		11		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				1.1	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=500mA			1.2	V
Reverse Recovery Time	t_{rr}	I_F=500mA, dI_F/dt=20A/μs		14.4		ns
Reverse Recovery Charge	Q_{rr}			0.4		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHz		28		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			5		
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=500mA		0.6		nC
Gate-Source Charge	Q_{gs}			0.16		
Gate-Drain Charge	Q_{gd}			0.14		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=10V,V_{GS}=4.5V, R_G=10Ω, I_D=500mA		2		ns
Turn-On Rise Time	t_r			18.8		
Turn-Off Delay Time	$t_{d(off)}$			10		
Turn-Off Fall Time	t_f			23		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

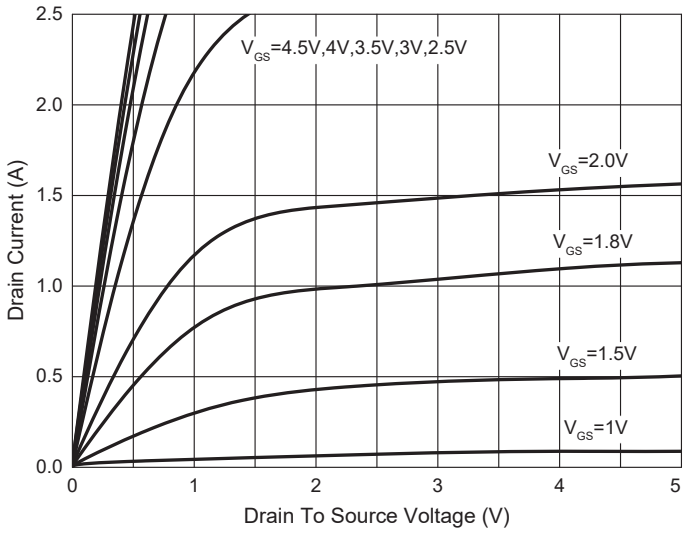


Fig. 2 - Transfer Characteristics

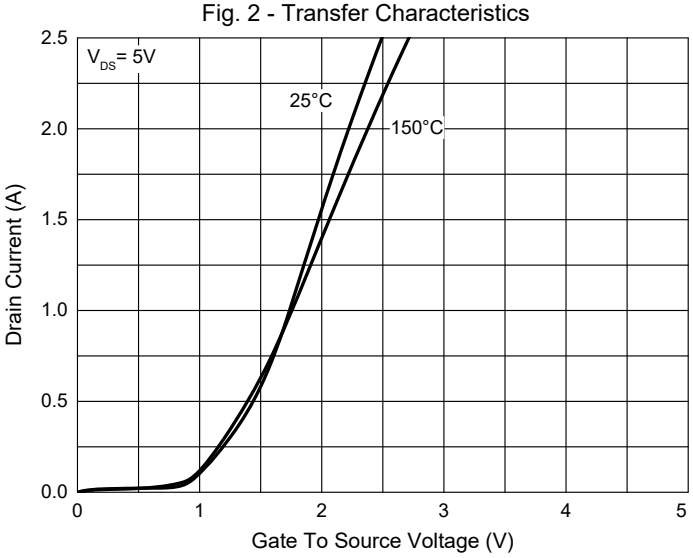


Fig.3-$R_{DS(ON)}$-V_{GS}

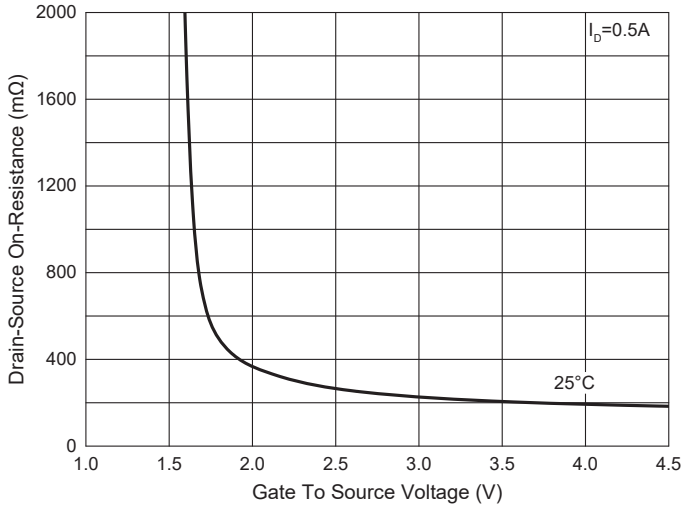


Fig.4-$R_{DS(ON)}$-I_D

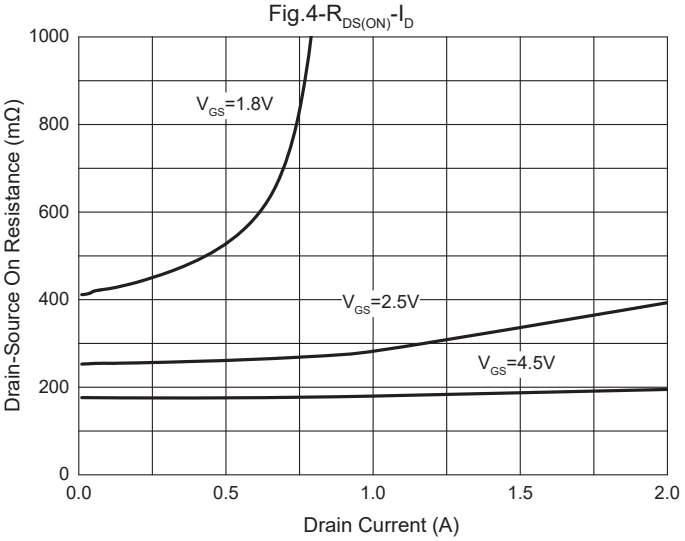


Fig. 5 - Capacitance Characteristics

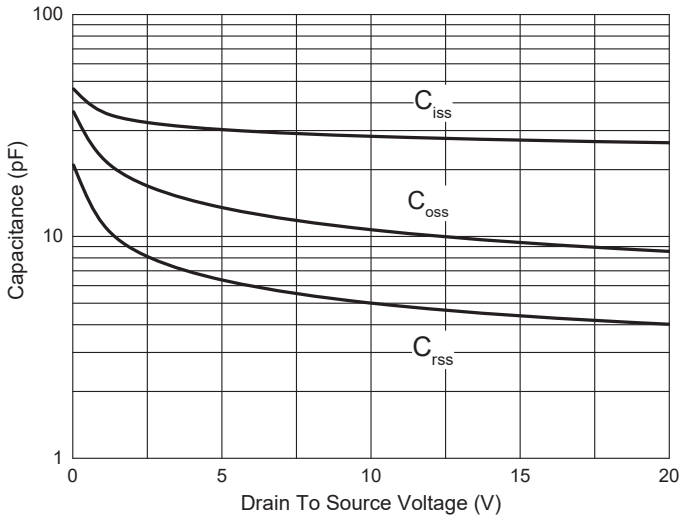
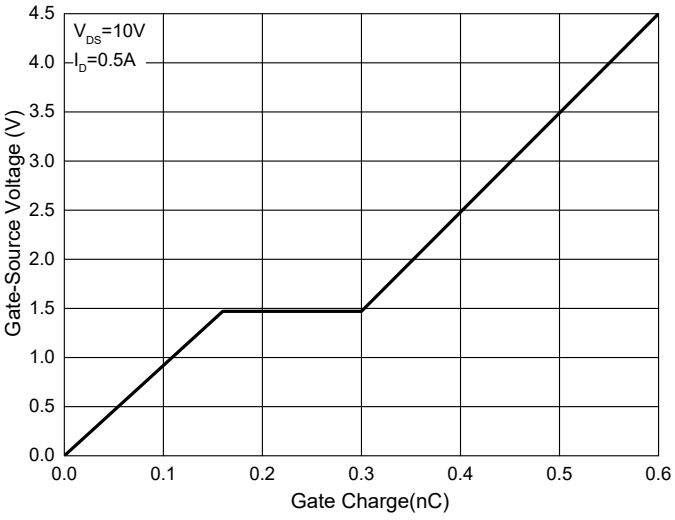


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

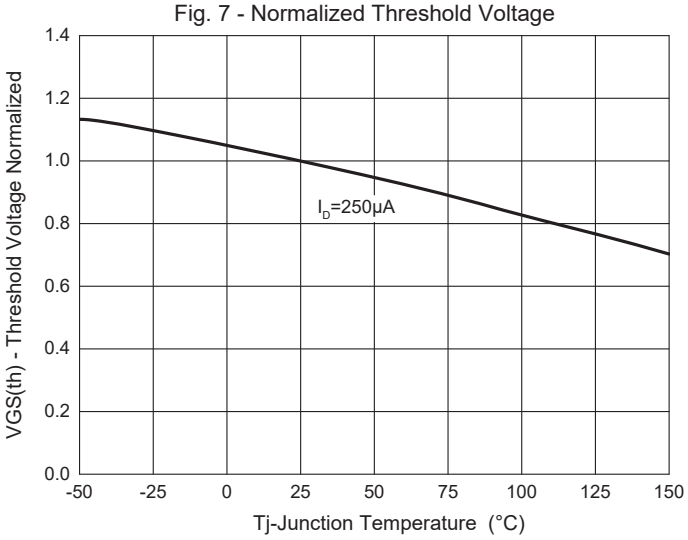


Fig. 8 - Normalized On Resistance Characteristics

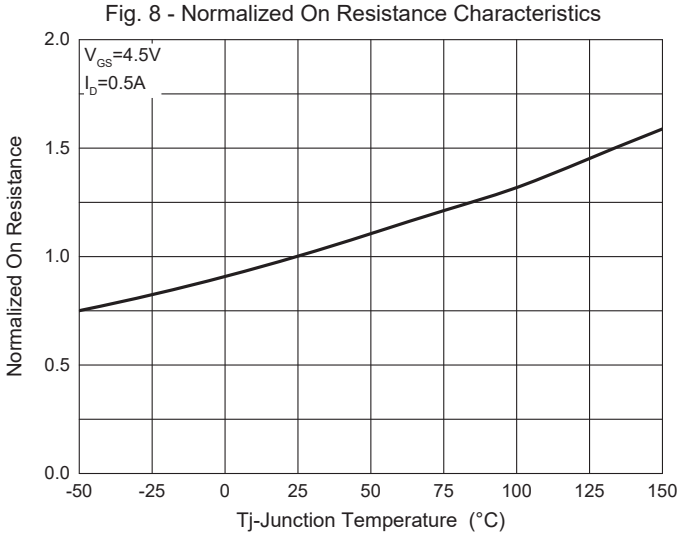


Fig.9-I_S-V_{SD}

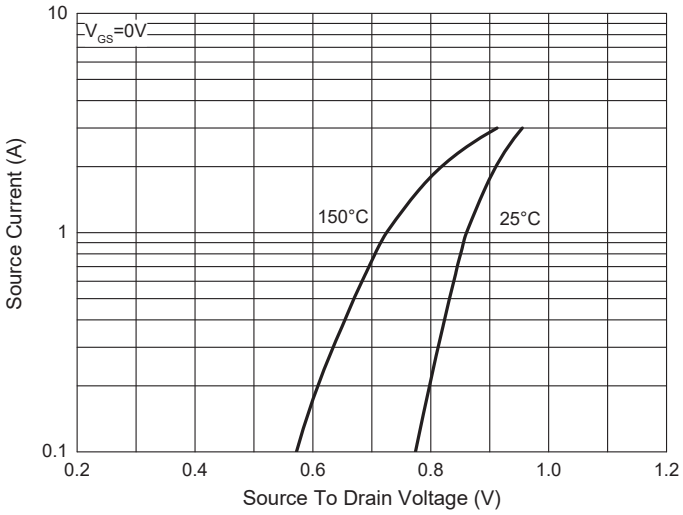


Fig. 10 - Drain Current

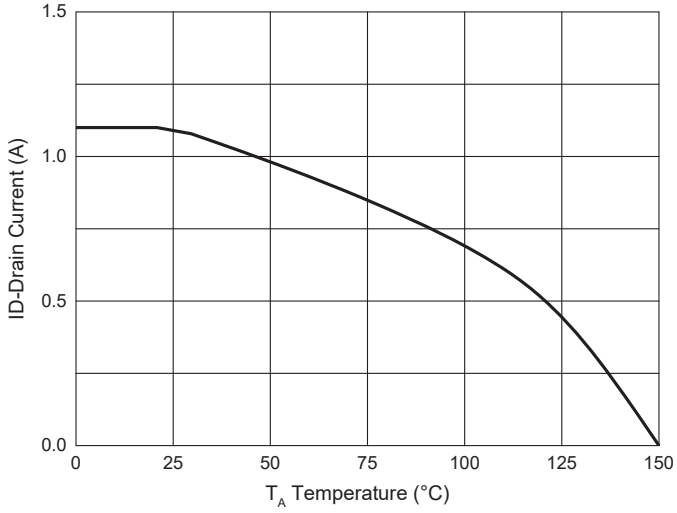
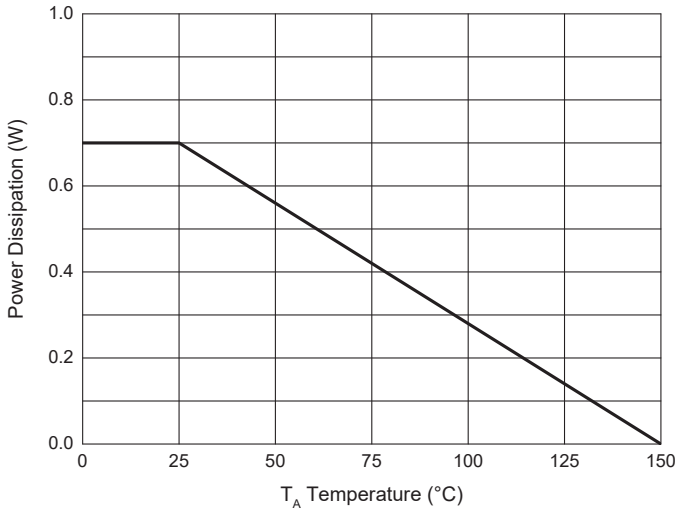


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

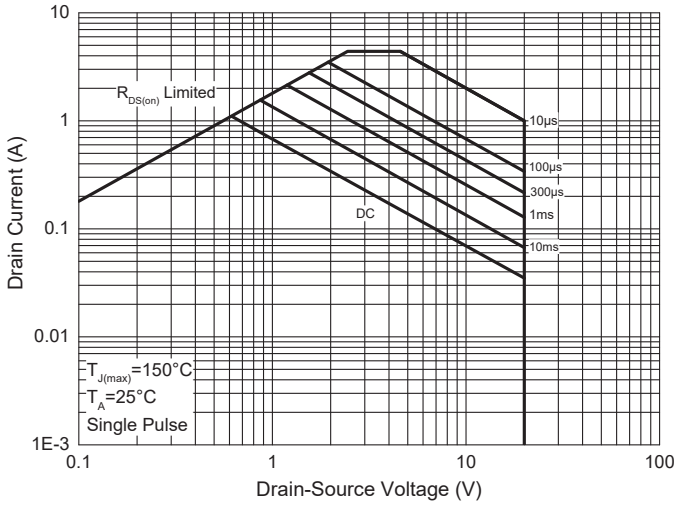
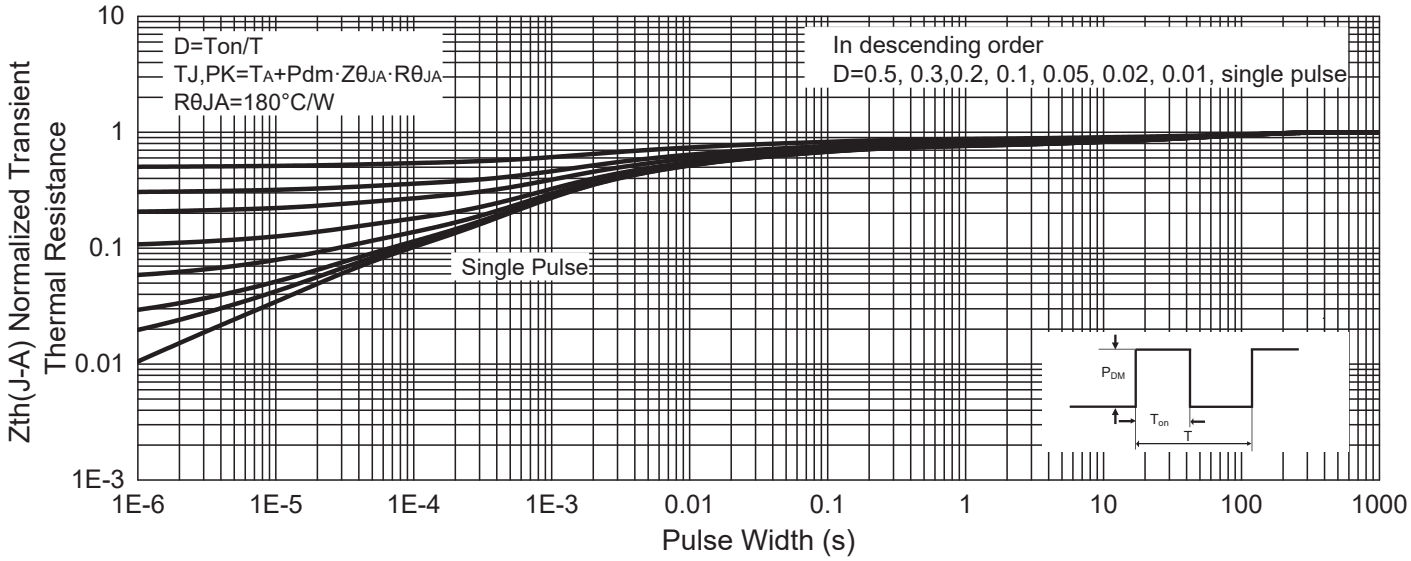


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:10Kpcs/Reel