

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

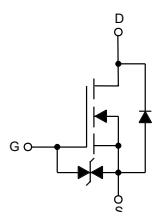
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 138°C/W Junction to Ambient (Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	20	V
Gate-Source Voltage		V _{GS}	±10	V
Drain Current-Continuous	T _A =25°C	I _D	0.75	A
	T _A =100°C		0.47	
Pulsed Drain Current ^(Note 3)		I _{DM}	3	A
Power Dissipation ^(Note 4)		P _D	0.9	W

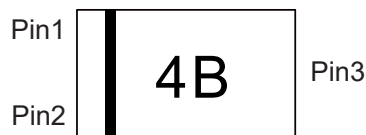
Note:

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 to ambient thermal resistance.

Internal Structure and Marking Code

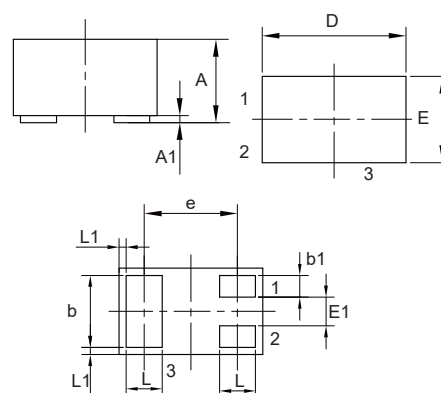


1. GATE
2. SOURCE
3. DRAIN



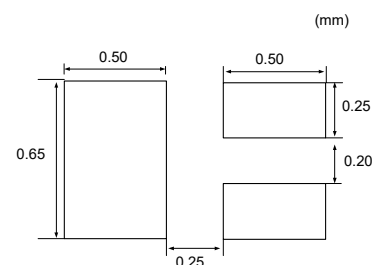
N-Channel MOSFET

DFN1006-3A



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.013	0.016	0.34	0.40	
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	
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



ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35	0.7	1.2	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1.0	μA
Gate-body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 10	μA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.5A$		173	250	m Ω
		$V_{GS}=2.5V, I_D=0.4A$		250	340	
		$V_{GS}=1.8V, I_D=0.2A$		405	950	
Gate Resistance	R_g	f=1 MHz, Open drain		44		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				0.75	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=0.5A$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F=0.1A, dI_F/dt=100A/\mu s$		5.5		ns
Reverse Recovery Charge	Q_{rr}			0.8		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=16V, V_{GS}=0V, f=1MHz$		33		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			5.6		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=0.1A$		1.2		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.2		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, V_{GS}=4.5V$ $I_D=0.5A, R_G=10\Omega$		5.4		ns
Turn-on Rise Time	t_r			5.2		
Turn-off Delay Time	$t_{d(off)}$			10.5		
Turn-off Fall Time	t_f			5.7		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

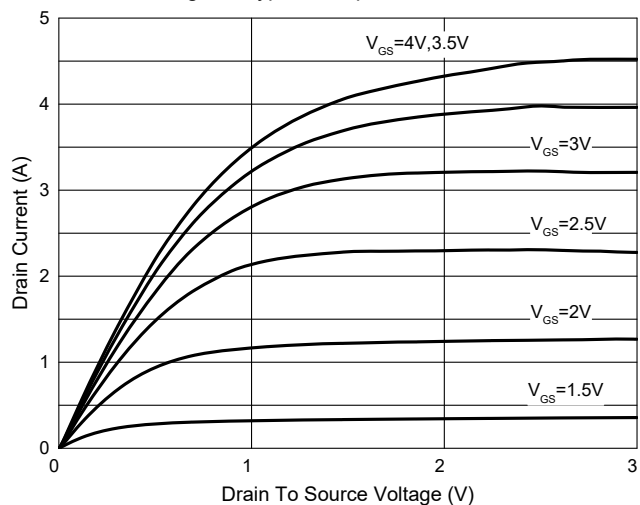


Fig. 2 - Transfer Characteristics

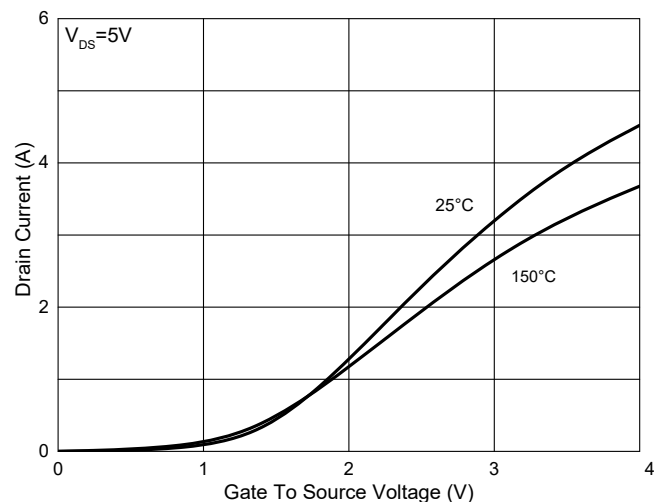


Fig. 3 - $R_{DS(ON)} - V_{GS}$

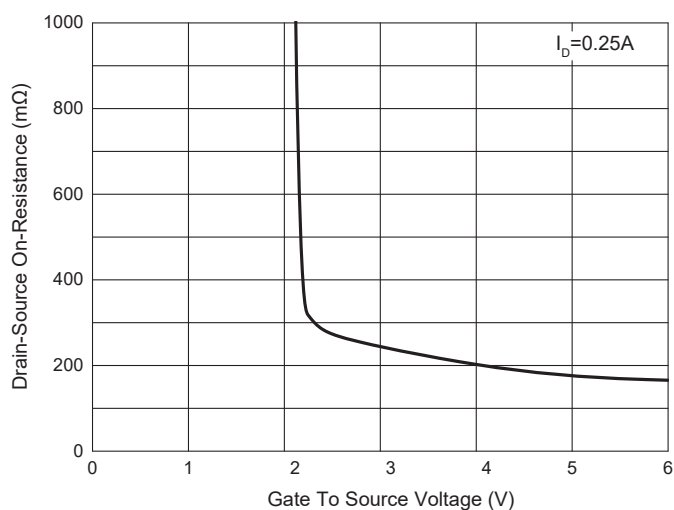


Fig. 4 - $R_{DS(ON)} - I_D$

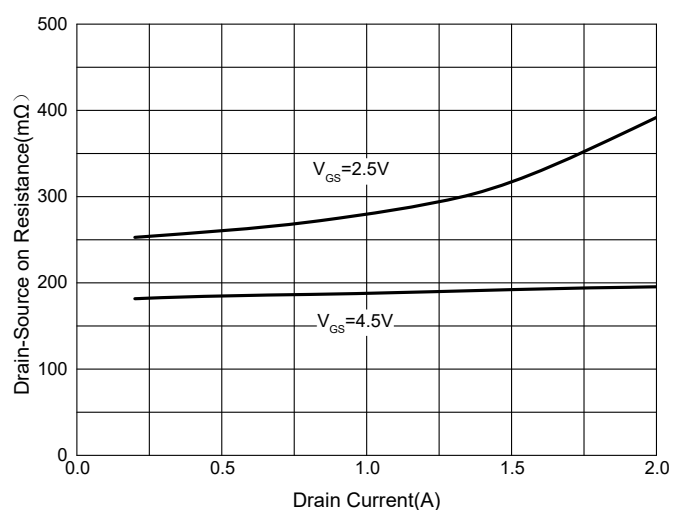


Fig. 5 - Capacitance Characteristics

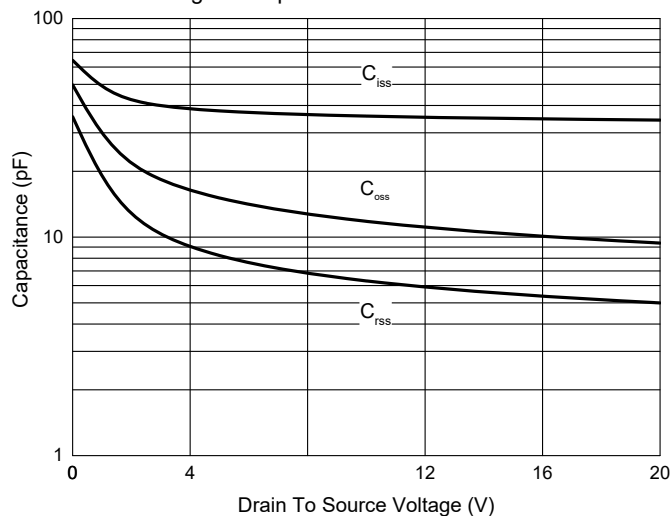
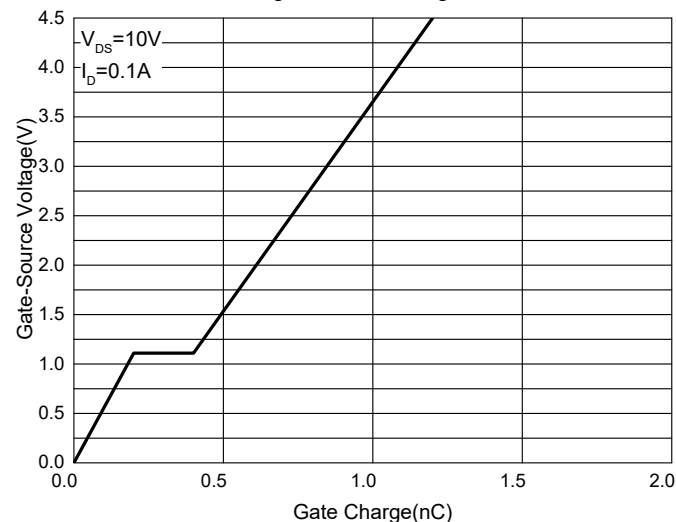


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

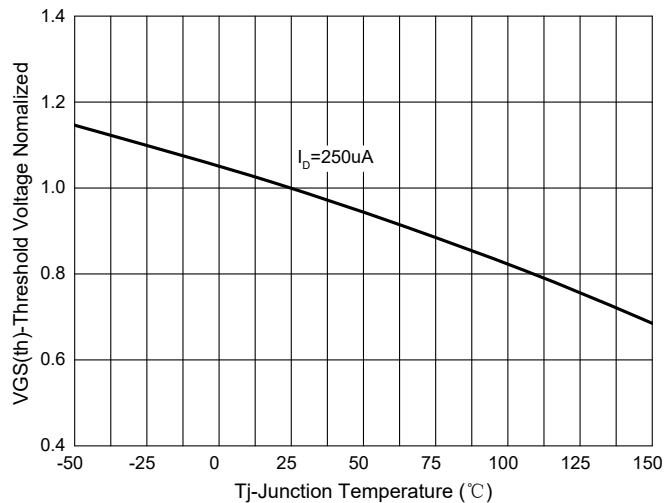


Fig.8-Normalized On Resistance Characteristics

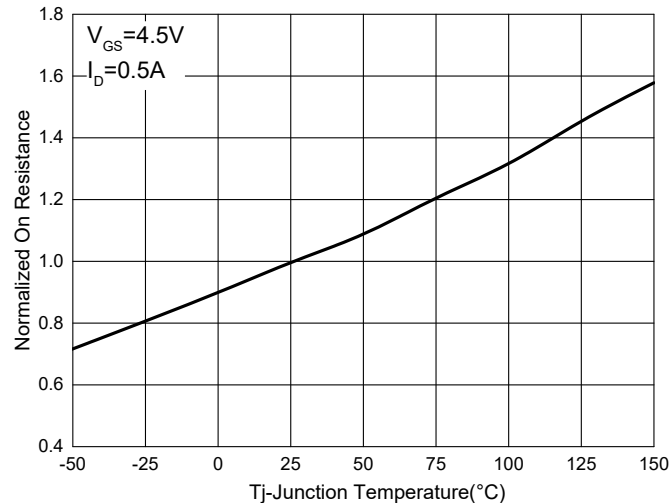


Fig.9 - $I_S - V_{SD}$

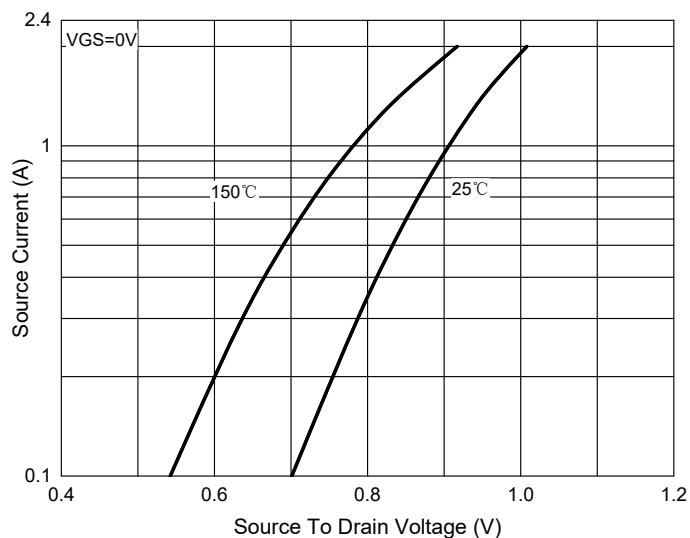


Fig. 10 - Drain Current

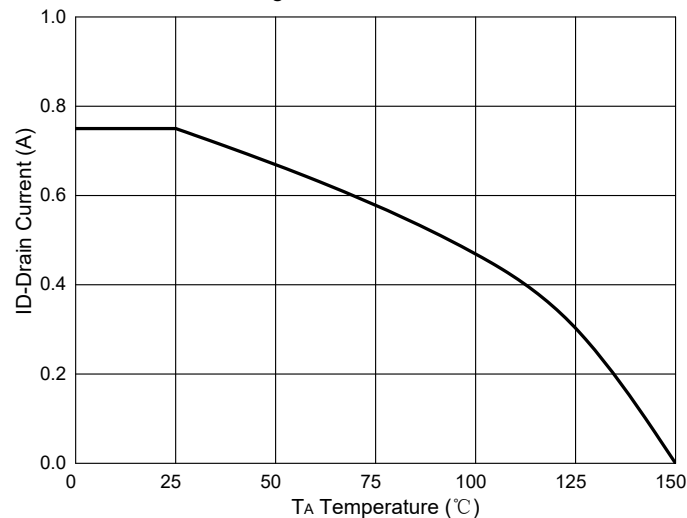
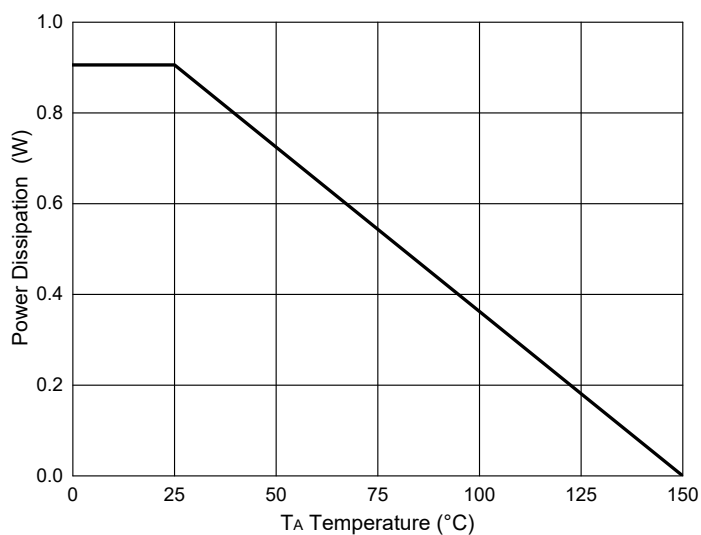


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

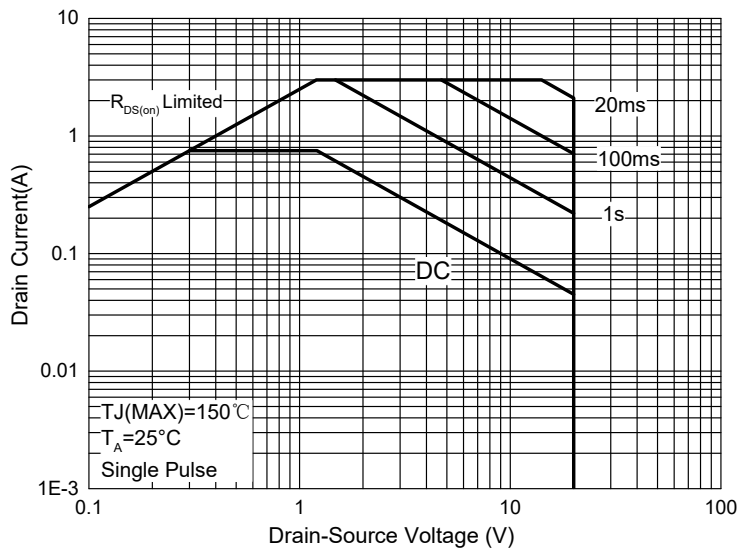
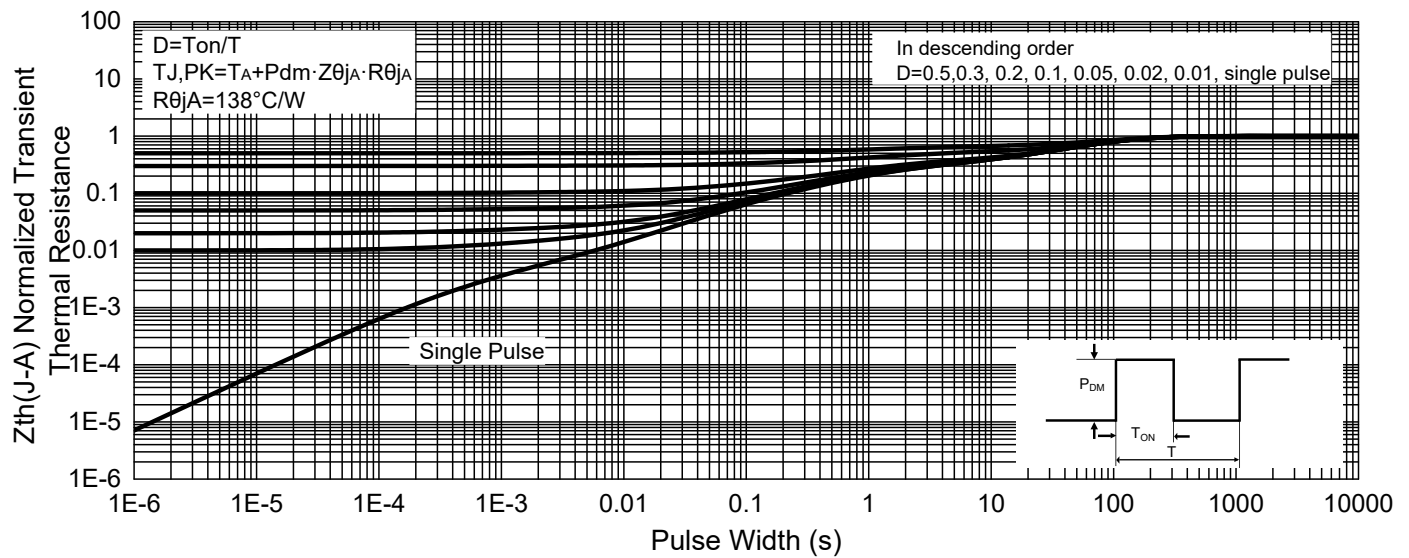


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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