Features

- Trench Power 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)

N-CHANNEL MOSFET

Maximum Ratings

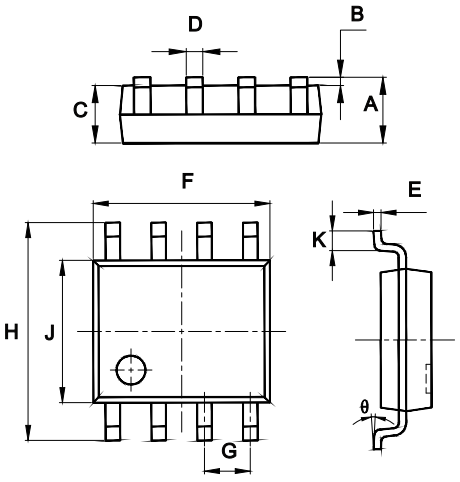
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	12	A
	T_A=70°C		9.6	
Pulsed Drain Current (Note 3)		I_{DM}	48	A
Total Power Dissipation(Note 4)		P_D	2.5	W
Single Pulsed Avalanche Energy(Note 5)		E_{AS}	56	mJ

Note:

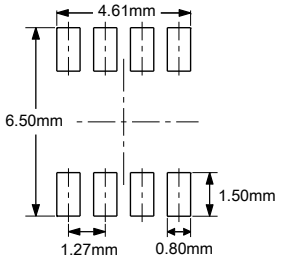
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =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.
5. TJ=25℃, VDD=20V, V_{GS}=10V, R_G=25Ω, L=0.5mH.

SOP-8

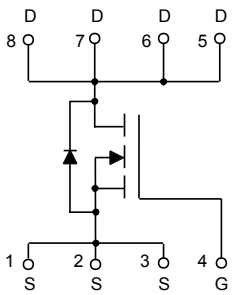


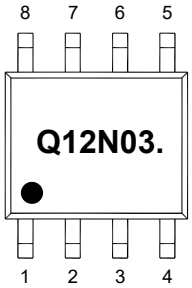
DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.35	1.75	
B	0.004	0.010	0.10	0.25	
C	0.053	0.061	1.35	1.55	
D	0.013	0.020	0.33	0.51	
E	0.007	0.010	0.17	0.25	
F	0.185	0.200	4.70	5.10	
G	0.050		1.270		TYP.
H	0.228	0.244	5.80	6.20	
J	0.150	0.157	3.80	4.00	
K	0.016	0.050	0.40	1.27	
θ	0°	8°	0°	8°	

Suggested Solder Pad Layout



Internal Structure and Marking Code





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	30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=10A		8	12	mΩ
		V_{GS}=4.5V, I_D=5A		11	15	
Gate Resistance	R_G	f=1MHz, Open drain		2.3		Ω
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=10A	15			S
Diode Characteristics						
Continuous Body Diode Current	I_S				12	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=12A		0.85	1.2	V
Reverse Recovery Time	t_{rr}	I_F=8A, dI_F/dt=100A/μs		17		ns
Reverse Recovery Charge	Q_{rr}			6.5		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		1035		pF
Output Capacitance	C_{oss}			180		
Reverse Transfer Capacitance	C_{rss}			155		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=12A		22		nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			5.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=3Ω, I_D=12A		6.4		ns
Turn-On Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			9		

Curve Characteristics

Fig.1 - Typical Output Characteristics

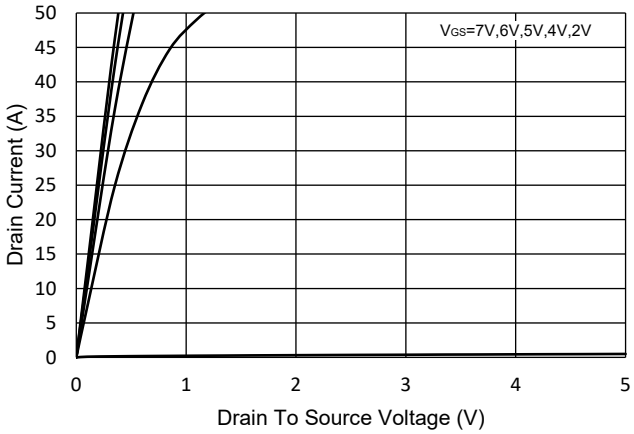


Fig.2 - Transfer Characteristic

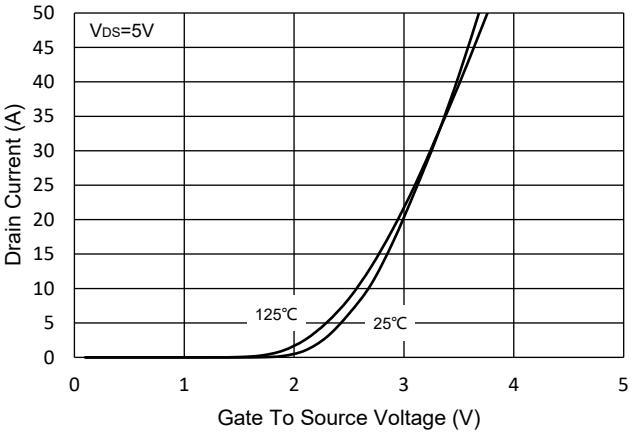


Fig.3 - $R_{DS(ON)}$ - V_{GS}

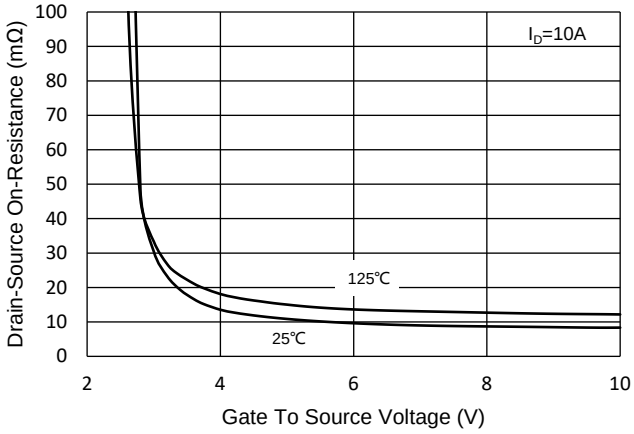


Fig.4 - $R_{DS(ON)}$ - I_D

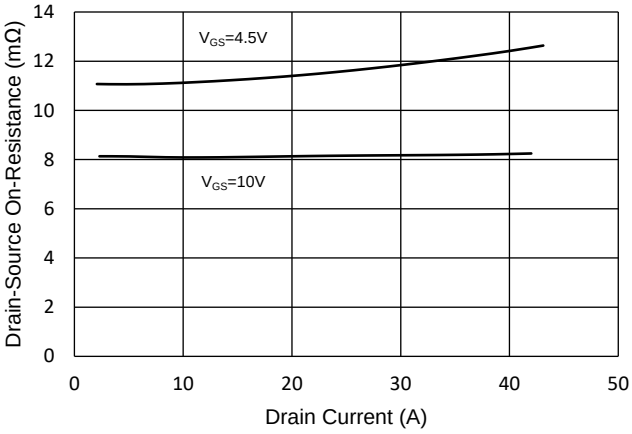


Fig.5 - Capacitance Characteristics

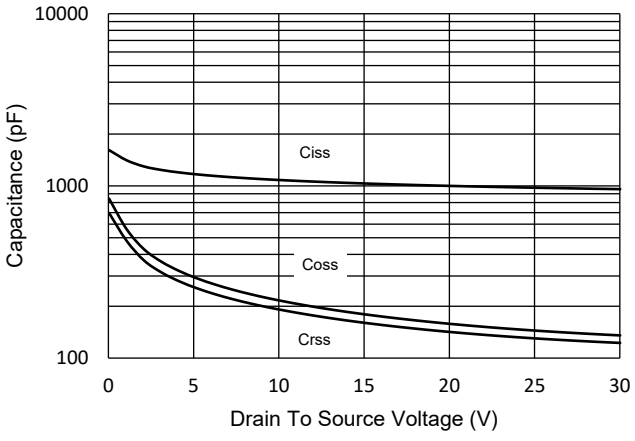
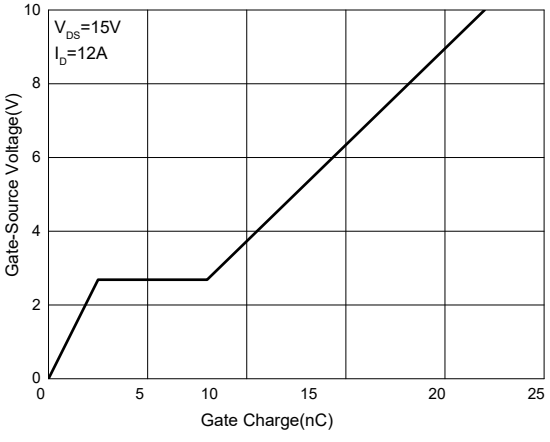


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

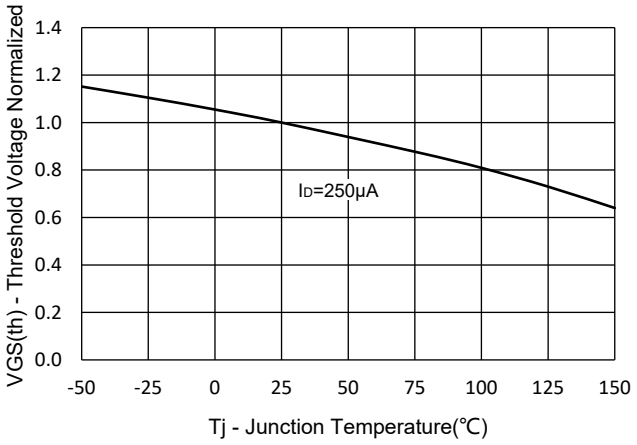


Fig.8 - Normalized On Resistance Characteristics

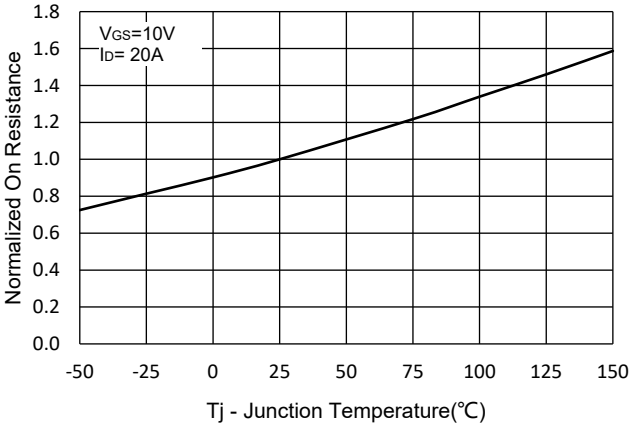


Fig.9 - I_S - V_{SD}

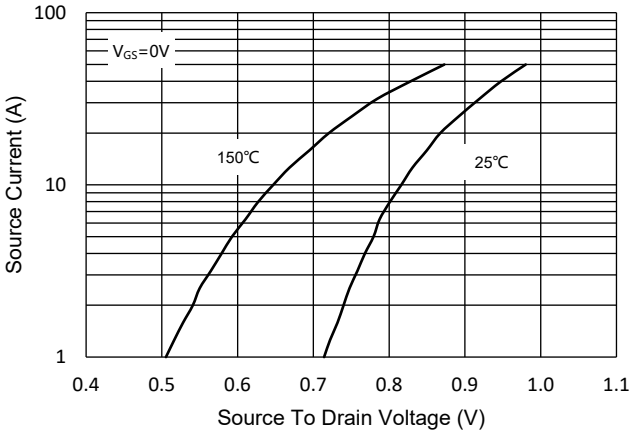


Fig.10 - Drain Current

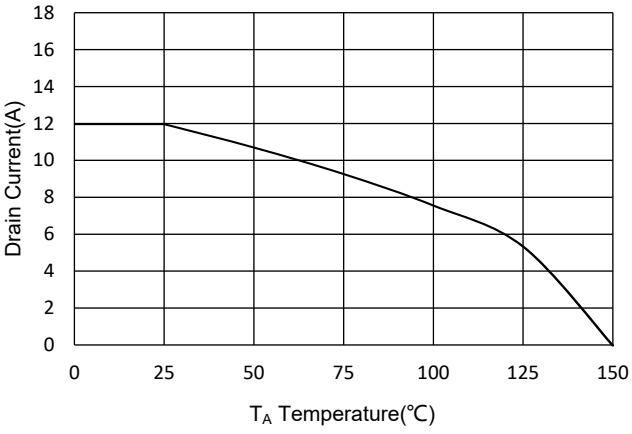
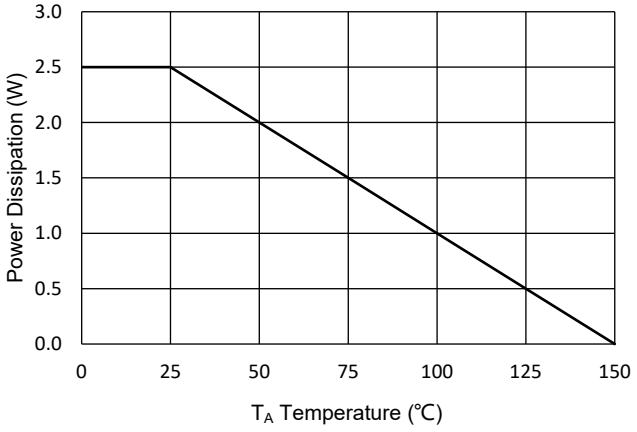


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

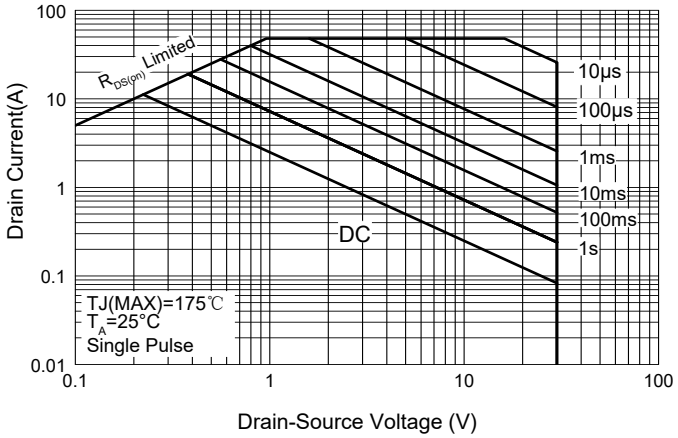
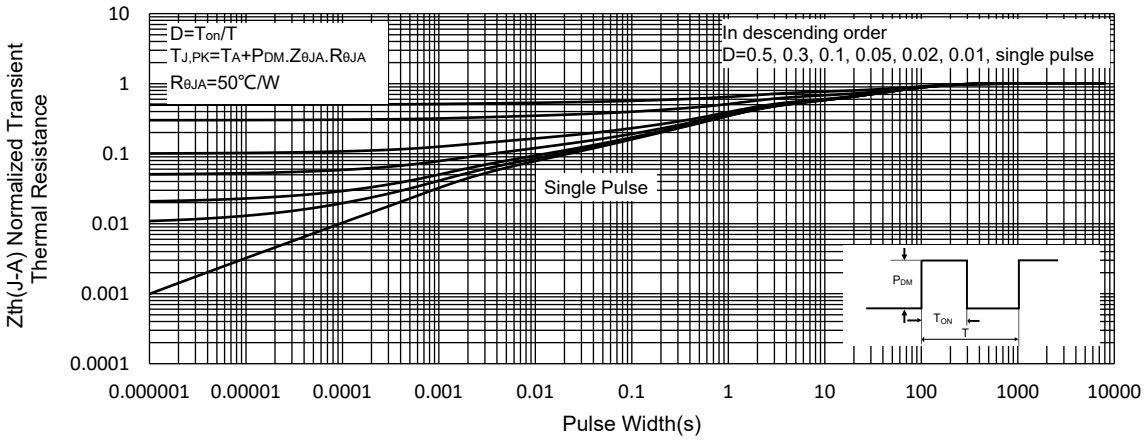


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:4Kpcs/Reel

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