Features

- Trench Power MOSFET
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free.“Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Moisture Sensitivity Level 1

N-CHANNEL MOSFET

Maximum Ratings

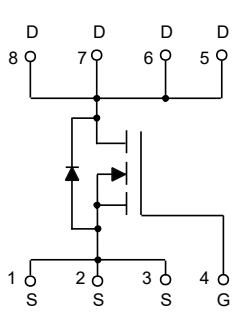
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 60°C/W Junction to Ambient(Note 2)

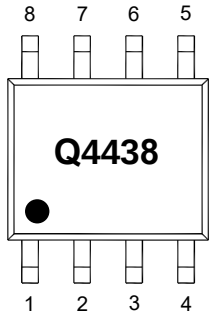
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	8.2	A
	T_A=100°C		5	
Pulsed Drain Current(Note 3)		I_{DM}	40	A
Total Power Dissipation(Note 4)		P_D	2.1	W
Single Pulsed Avalanche Energy(Note 5)		E_{AS}	72	mJ

Note:

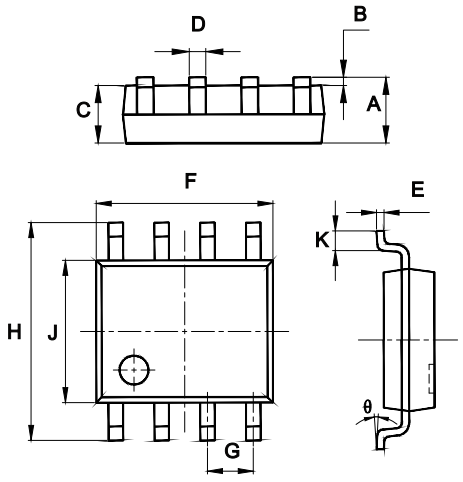
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The Power dissipation P_{DSM} is based on $R_{\theta JA}$ t≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
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. T_J=25°C, V_{DD}=40V, V_{GS}=10V, L=1mH.

Internal Structure and Marking Code



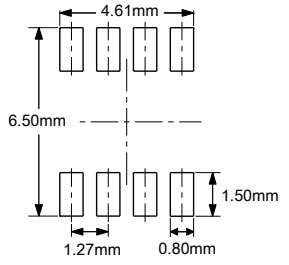


SOP-8



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



Electrical Characteristics @ 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	60			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=8.2A		13	22	mΩ
		V_{GS}=4.5V, I_D=7.6A		15.5	27	
Forward Tranconductance	g_{fs}	V_{DS}=5V, I_D=8.2A	10			S
Gate Resistance	R_G	f=1MHz, Open Drain		1.2		Ω
Dynamic Characteristics						
Continuous Body Diode Current	I_S				8.2	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=8.2A			1.2	V
Reverse Recovery Time	t_{rr}	I_S=20A,di/dt=100A/μs		24		ns
Reverse Recovery Charge	Q_{rr}			23		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHz		2306		pF
Output Capacitance	C_{oss}			126		
Reverse Transfer Capacitance	C_{rss}			104		
Total Gate Charge(10V)	Q_g	V_{DS}=30V,V_{GS}=10V,I_D=8.2A		45		nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			9		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=30V, R_L=3.6Ω, R_{GEN}=3Ω		8.8		ns
Turn-On Rise Time	t_r			11		
Turn-Off Delay Time	$t_{d(off)}$			36		
Turn-Off Fall Time	t_f			7.7		

Fig. 1 - Typical Output Characteristics

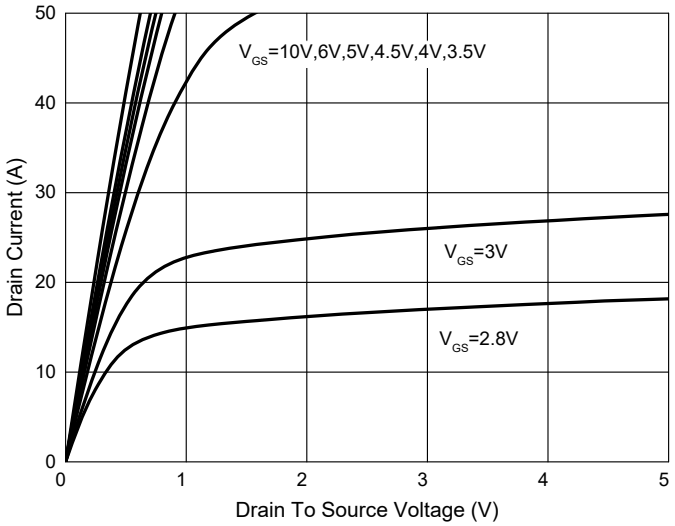


Fig. 2 - Transfer Characteristics

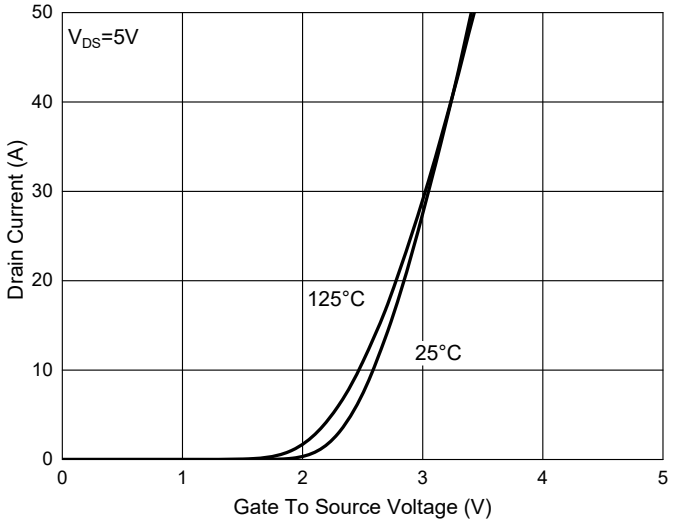


Fig. 3 - $R_{DS(ON)}$—V_{GS}

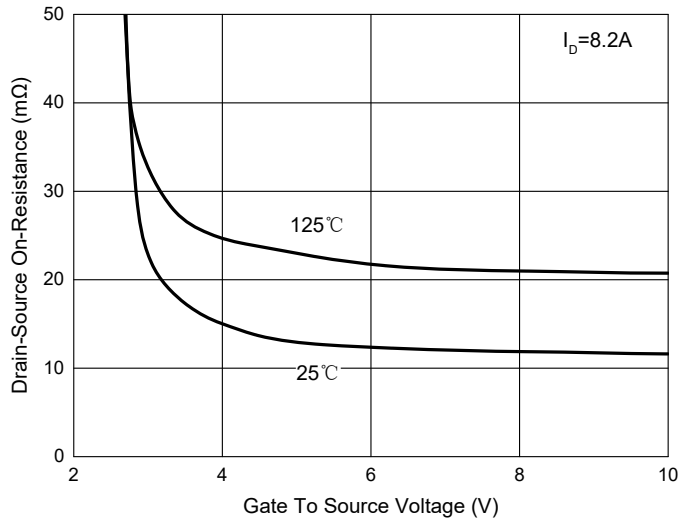


Fig. 4 - $R_{DS(ON)}$—I_D

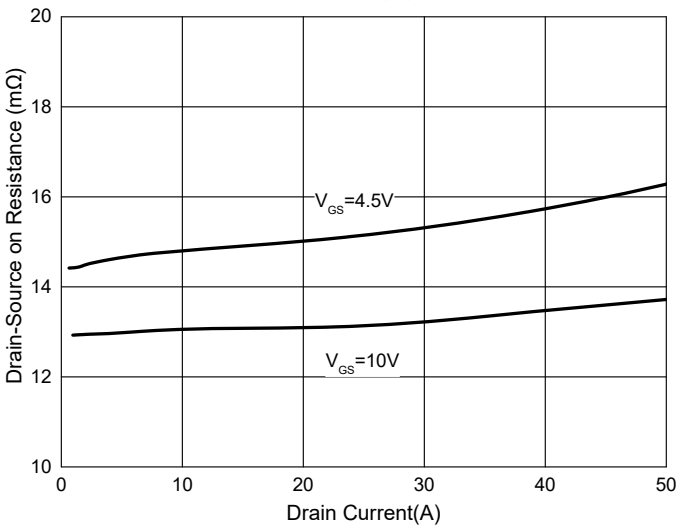


Fig. 5 - Capacitance Characteristics

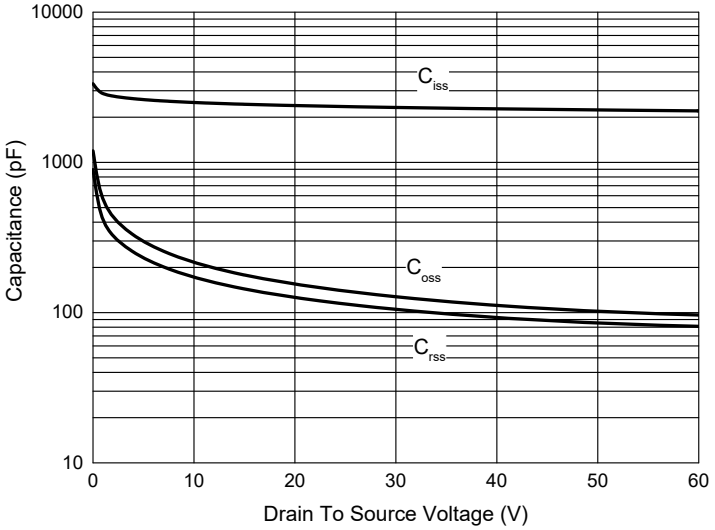
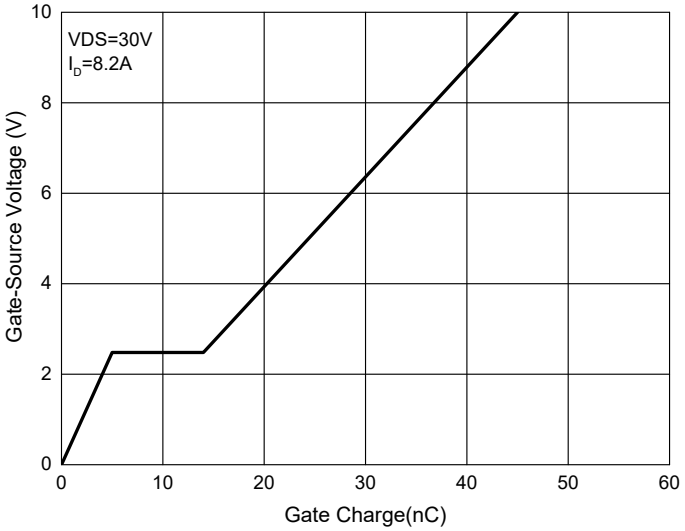


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

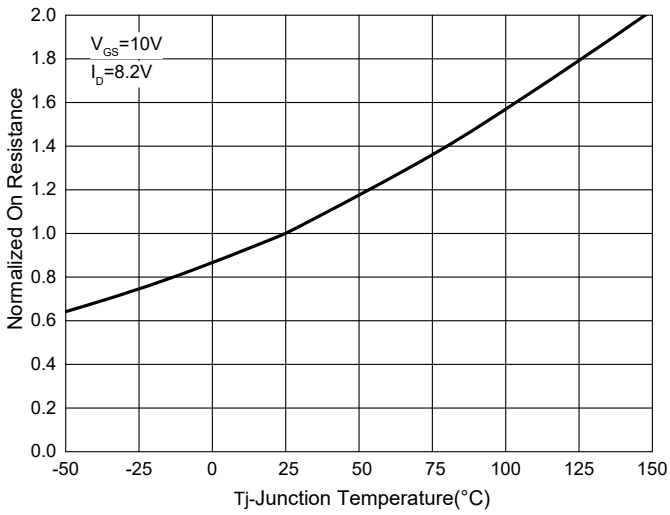


Fig. 8 - Nomalized Threshold voltage

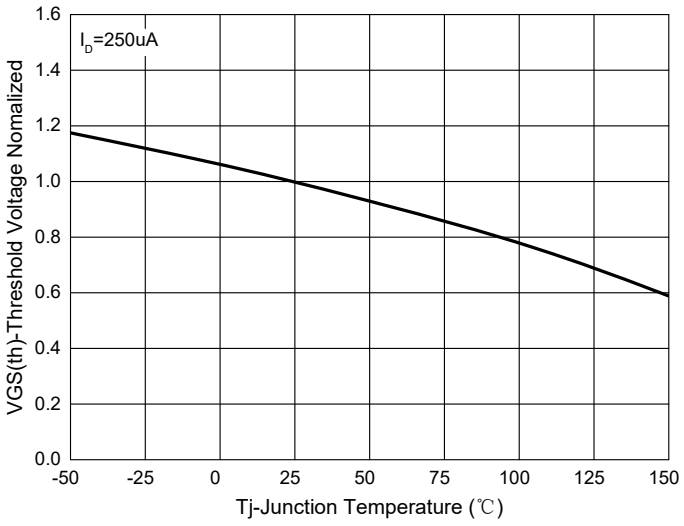


Fig. 9 - I_S—V_{SD}

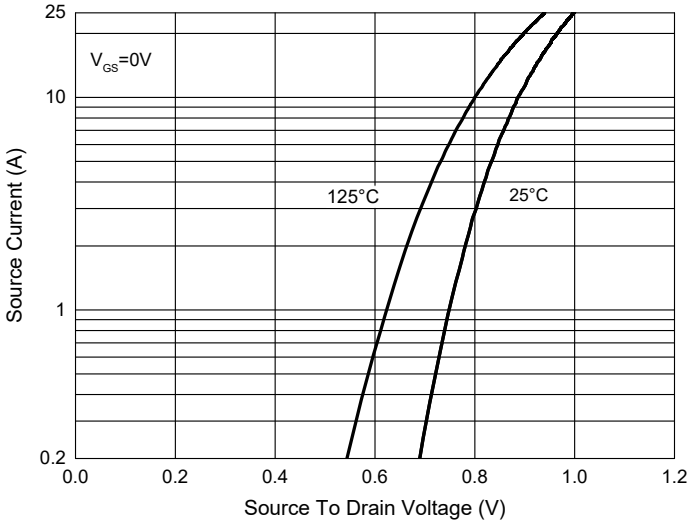


Fig. 10 - Drain Current

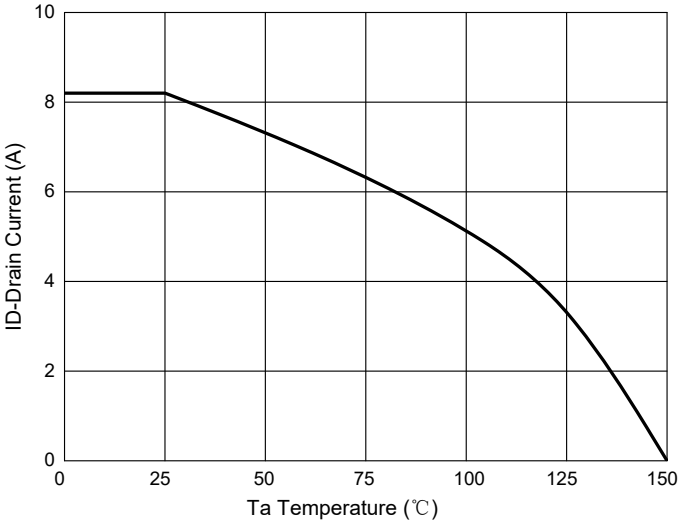
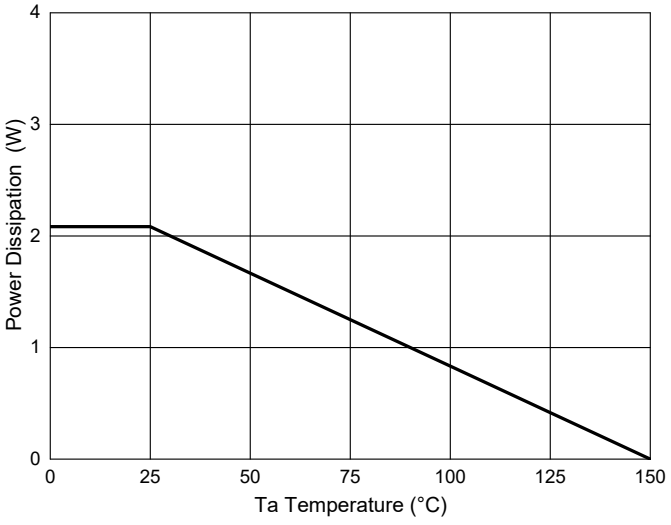


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

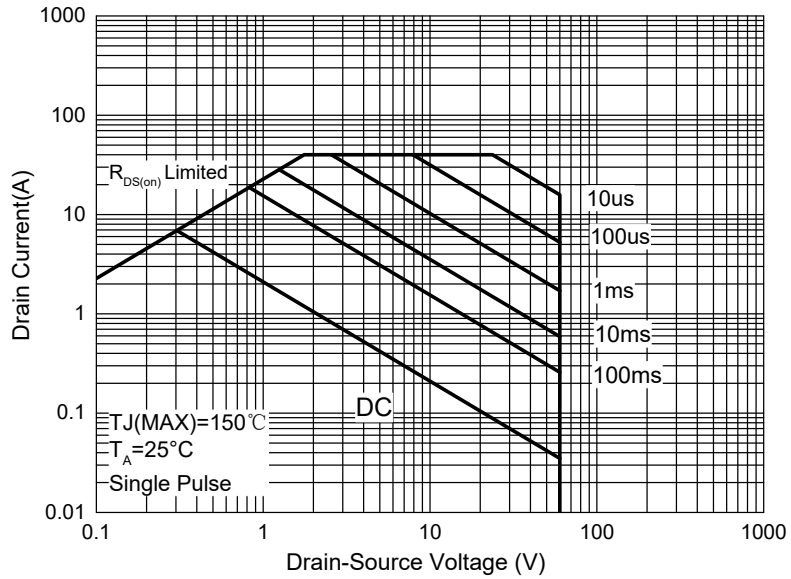
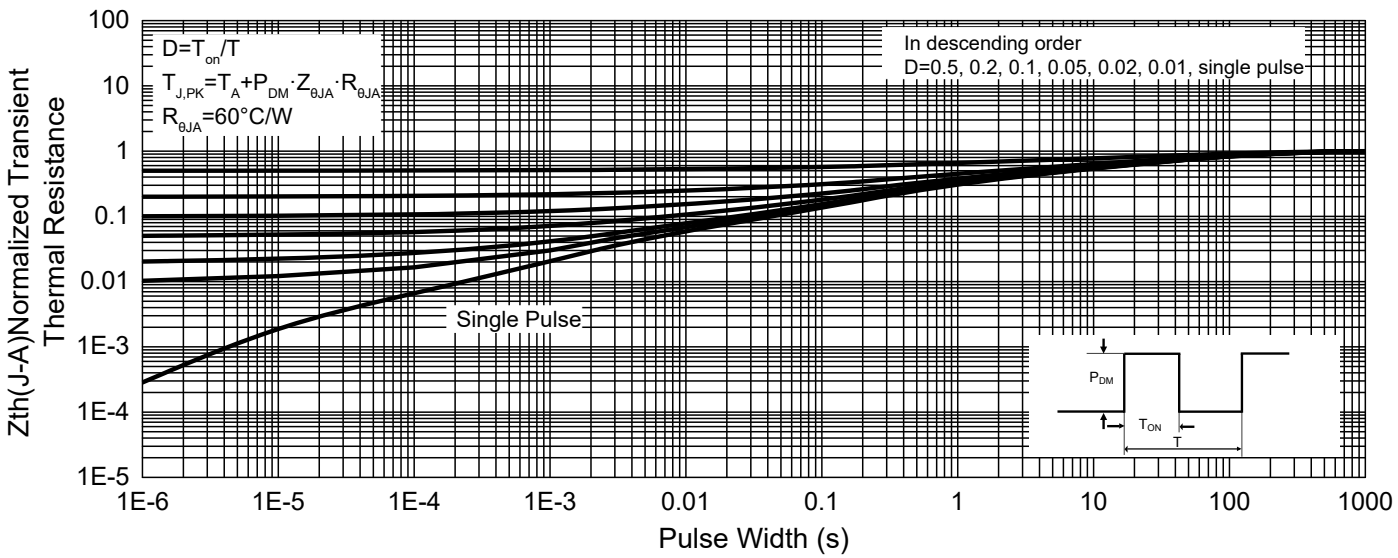


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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