Features

- ESD Protected Up To 2KV(HBM)
- Very Low FOM $R_{DS(on)}$ x Qg
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL Super-Junction Power MOSFET

Maximum Ratings

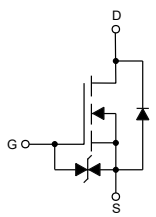
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 40°C/W Junction to Ambient(Note2)
- Thermal Resistance: 1°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	800	V
Gate-Source Volltage		V_{GS}	±30	V
Continuous Drain Current	T_C=25°C	I_D	6	A
	T_C=100°C		3.8	
Pulsed Drain Current (Note3)		I_{DM}	24	A
Total Power Dissipation(Note4)		P_D	125	W
Single Pulsed Avalanche Energy(Note5)		E_{AS}	50	mJ

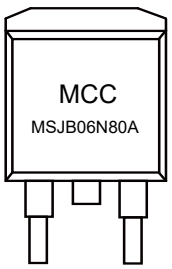
Note:

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-case thermal resistance.
5. T_J=25°C, V_{DD}=50V, R_G=25Ω,V_{GS}=10V, L=50mH.

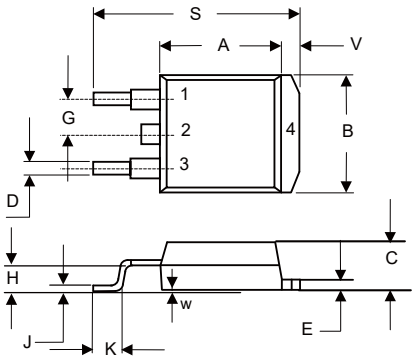
Internal Structure and Marking Code



1. Gate
2,4. Drain
3. Source



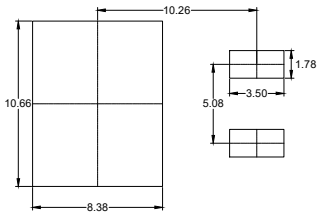
D^2-PAK



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.331	0.370	8.40	9.40	
B	0.378	0.417	9.60	10.60	
C	0.165	0.189	4.20	4.80	
D	0.027	0.037	0.68	0.94	
E	0.045	0.055	1.14	1.40	
G	0.10		2.54		TYP.
H	0.096	0.134	2.43	3.40	
J	0.011	0.025	0.28	0.64	
K	0.071	0.131	1.80	3.32	
S	0.575	0.625	14.60	15.87	
V	0.042	0.058	1.07	1.47	
W	0.000	0.010	0.00	0.25	

Suggested Solder Pad Layout

Unit:mm



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	800			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=800V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.5	3.5	4.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=2.5A		0.97	1.2	Ω
Gate Resistance	R_G	f=1MHz, Open drain		21		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				6	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=4.5A			1.4	V
Reverse Recovery Time	t_{rr}	I_S=6A,di/dt=100A/μs		563		ns
Reverse Recovery Charge	Q_{rr}			3.3		μC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=100V,V_{GS}=0V,f=400KHz		386		pF
Output Capacitance	C_{oss}			13		
Reverse Transfer Capacitance	C_{rss}			0.9		
Total Gate Charge	Q_g	V_{DS}=640V,V_{GS}=10V,I_D=4.5A		13		nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			8.8		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=400V, V_{GS}=10V, R_G=25Ω, I_D=4.5A		7.5		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			55		
Turn-Off Fall Time	t_f			11		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

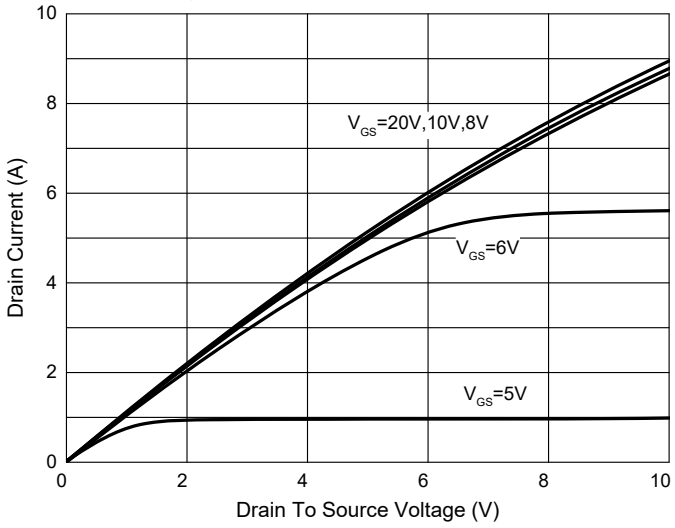


Fig. 2 - Transfer Characteristics

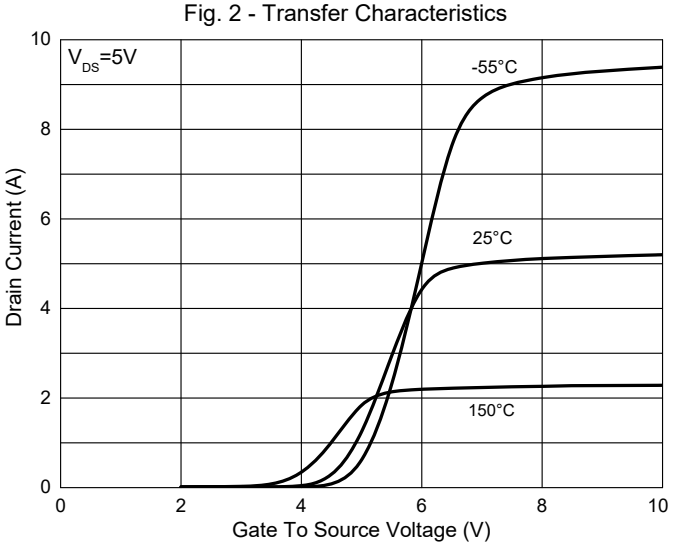


Fig. 3 - $R_{DS(ON)}$—V_{GS}

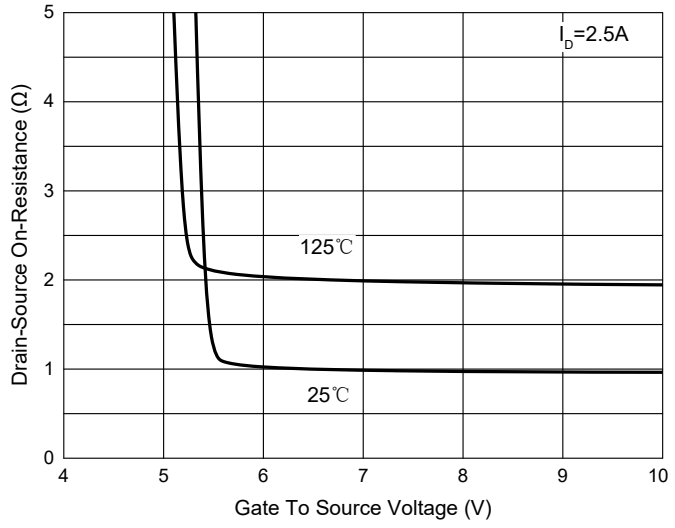


Fig. 4 - $R_{DS(ON)}$—I_D

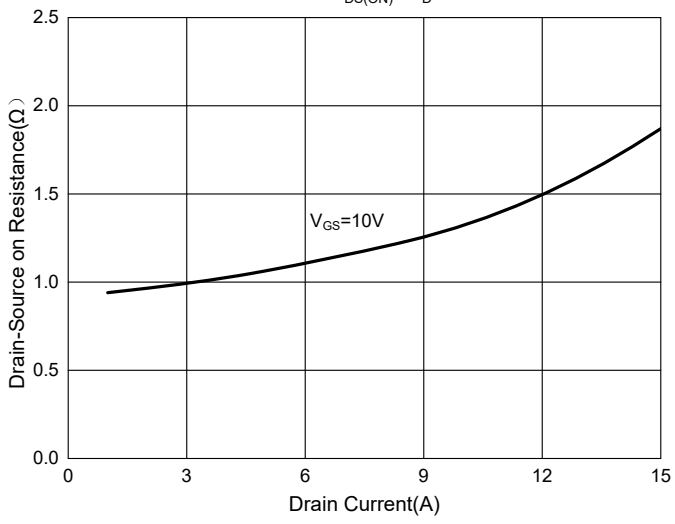


Fig. 5 - Capacitance Characteristics

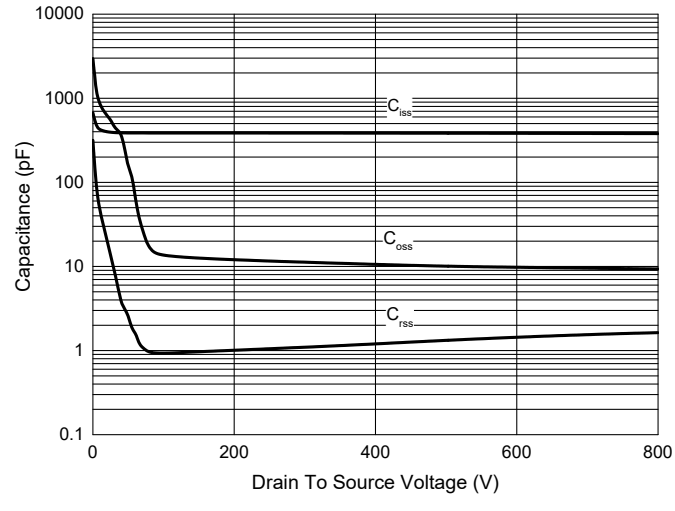
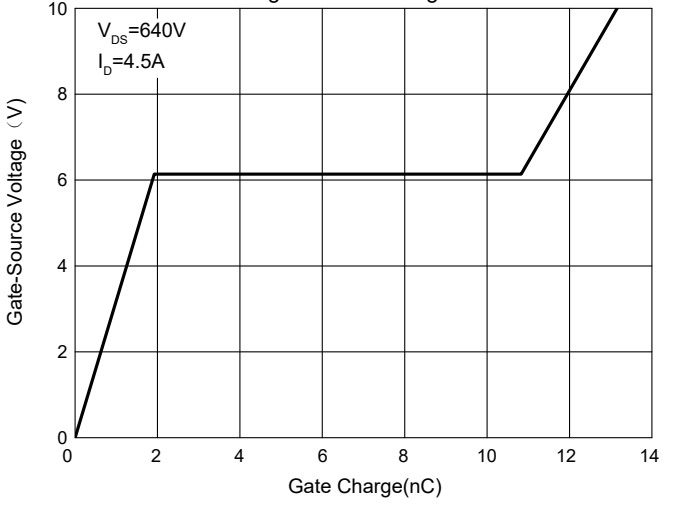


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Nomalized Threshold Voltage

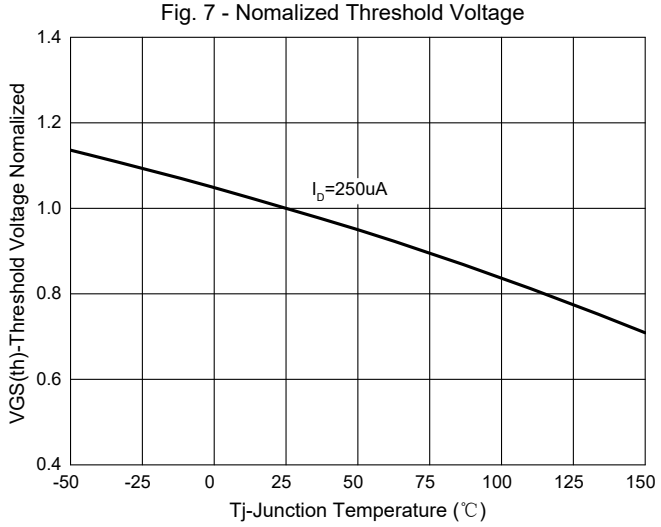


Fig.8-Normalized On Resistance Characteristics

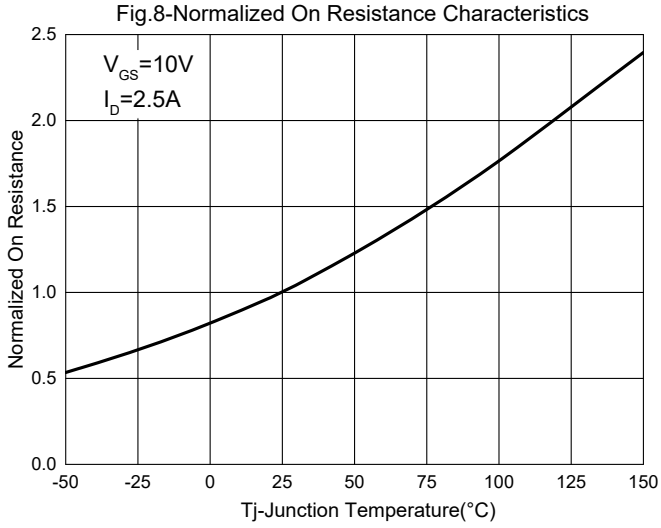


Fig.9 - I_S—V_{SD}

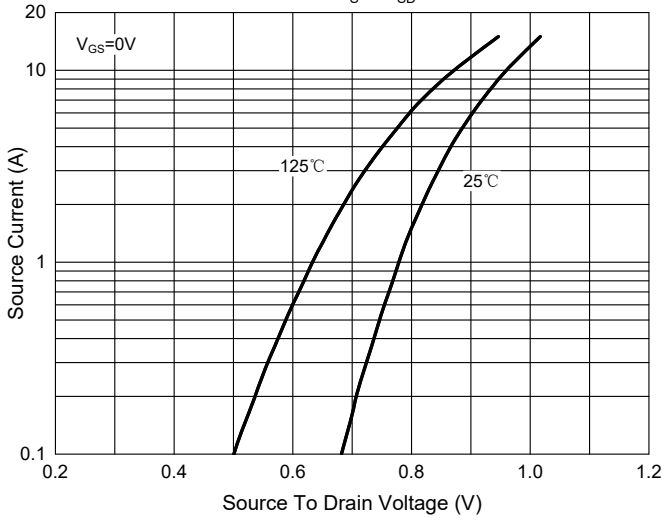


Fig. 10 - Drain Current

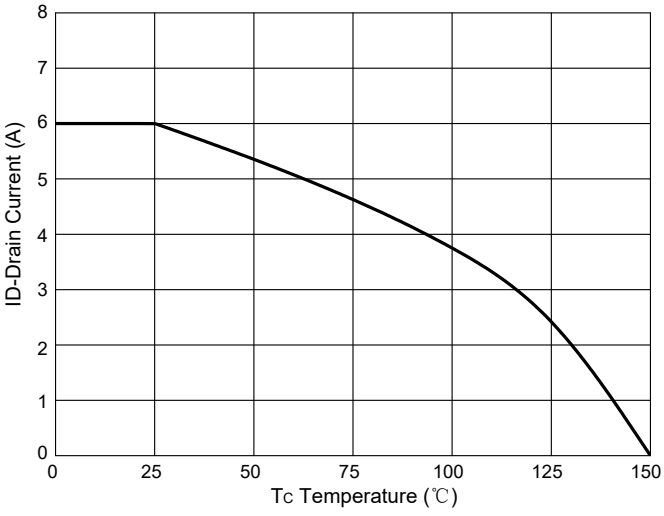
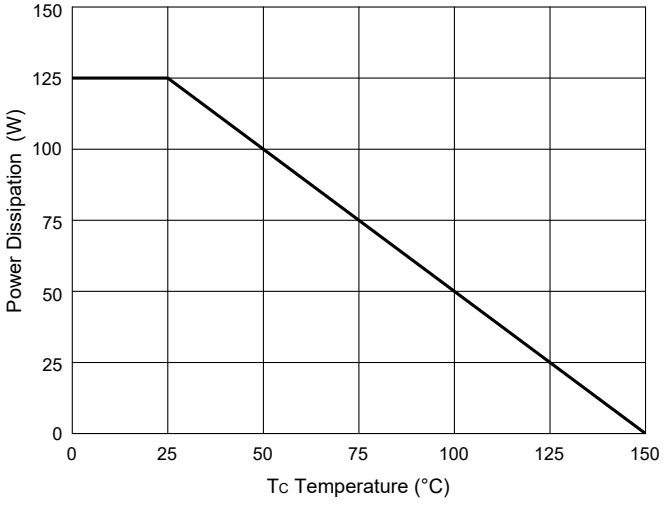


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

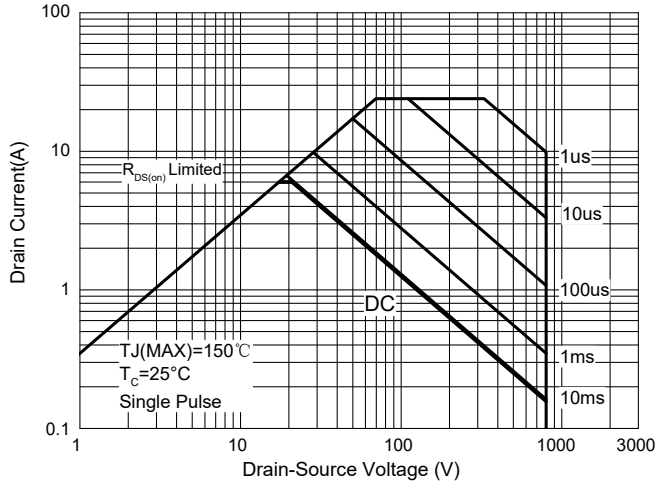
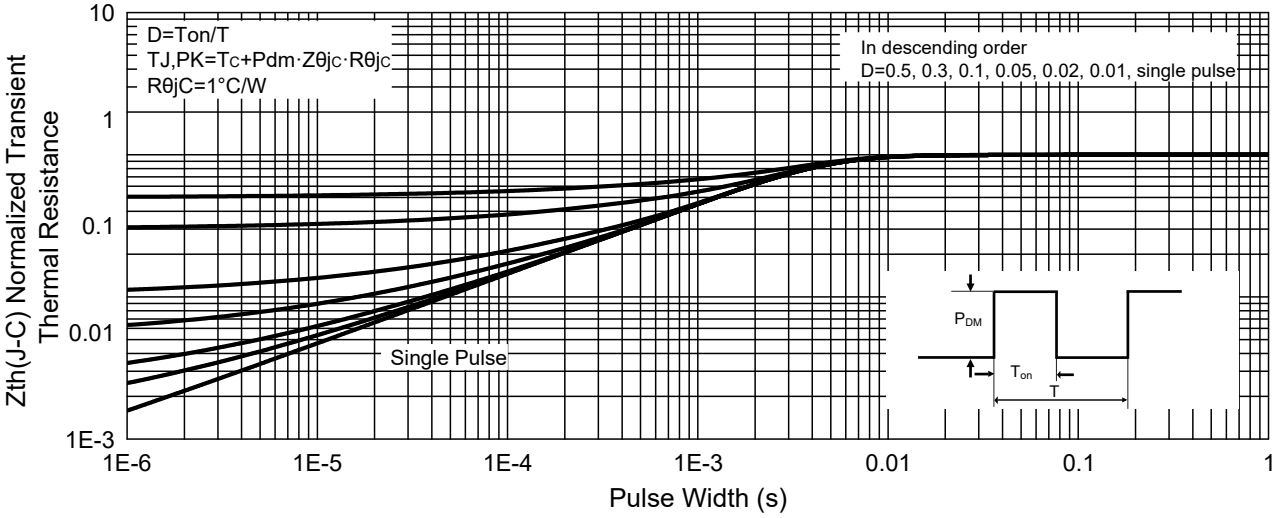


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800pcs/Reel

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