

**Features**

- Very Low FOM  $R_{DS(on)} \times Q_g$
- 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

**Maximum Ratings**

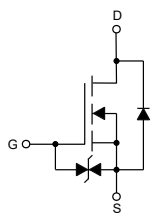
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.6°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	±30	V
Continuous Drain Current	$I_D$	6	A
Pulsed Drain Current (Note 2)	$I_{DM}$	18	A
Single Pulse Avalanche Energy (Note 3)	$E_{AS}$	170	mJ
Total Power Dissipation	$T_C=25^\circ C$ $P_D$	35	W

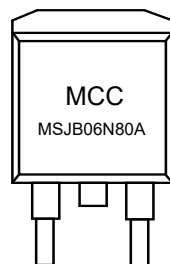
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
3.  $V_{DD}=50V$ ,  $R_G=25\Omega$ , Starting  $T_J=25^\circ C$  .

**Internal Structure and Marking Code**

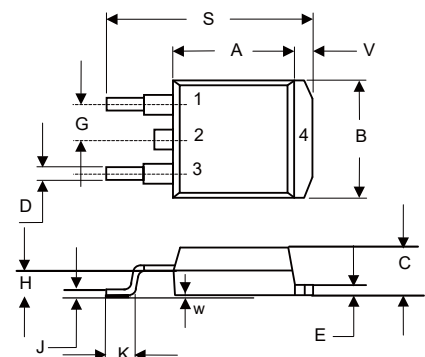


1. Gate
- 2,4. Drain
3. Source



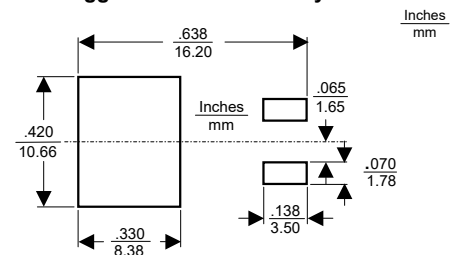
**N-CHANNEL  
Super-Junction  
Power MOSFET**

**D<sup>2</sup>-PAK(TO-263)**



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	0.010		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**



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	800			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=800V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	3.5	4.5	V
Drain-Source On-Resistance <sup>(Note 4)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$		0.95	1.2	$\Omega$
Gate Resistance	$R_G$	$V_{GS}=0V, f=1.0MHz$		21		$\Omega$
<b>Dynamic Characteristics<sup>(Note 5)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=100V, V_{GS}=0V, f=400kHz$		349		pF
Output Capacitance	$C_{oss}$			16		
Reverse Transfer Capacitance	$C_{rss}$			0.9		
Total Gate Charge	$Q_g$	$V_{DD}=640V, V_{GS}=10V, I_D=4.5A$		10.6		nC
Gate-Source Charge	$Q_{gs}$			3.3		
Gate-Drain Charge	$Q_{gd}$			4.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=400V, I_D=4.5A, R_G=25\Omega$		16		ns
Turn-On Rise Time	$t_r$			24		
Turn-Off Delay Time	$t_{d(off)}$			59		
Turn-Off Fall Time	$t_f$			19		
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$	$T_C=25^\circ C$			6	A
Pulsed Diode Forward Current	$I_{SM}$				18	
Body Diode Voltage	$V_{SD}$	$I_{SD}=4.5A, V_{GS}=0V$			1.4	V
Reverse Recovery Time	$t_{rr}$	$V_{DD}=100V, I_F=I_S, di_F/dt=100A/\mu s$		328		ns
Reverse Recovery Charge	$Q_{rr}$				2	$\mu C$

Note 4. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 1\%$ .

5. Guaranteed by Design, Not Subject to Production Testing.

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

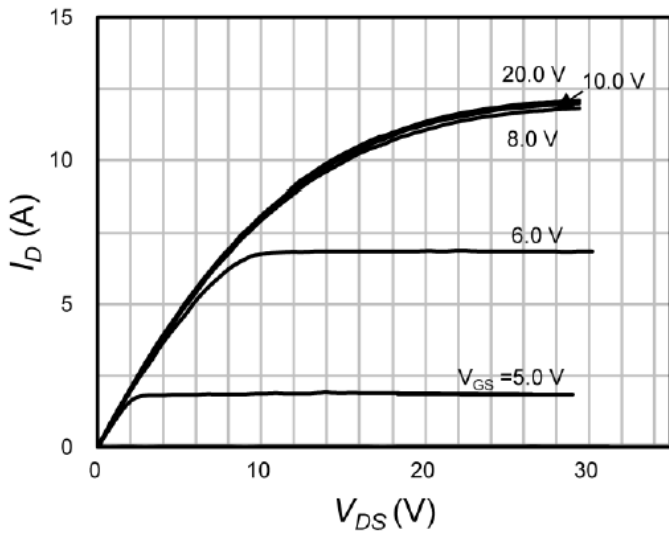


Fig. 2 - Transfer Characteristics

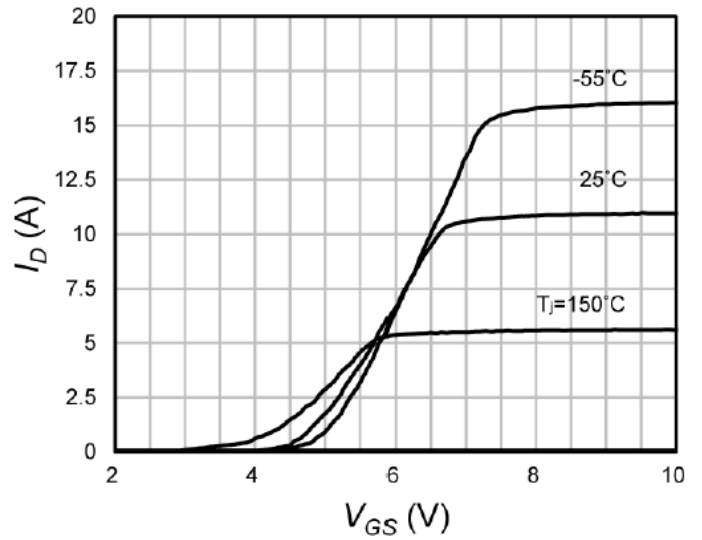


Fig. 3 -  $R_{DS(ON)} - I_D$

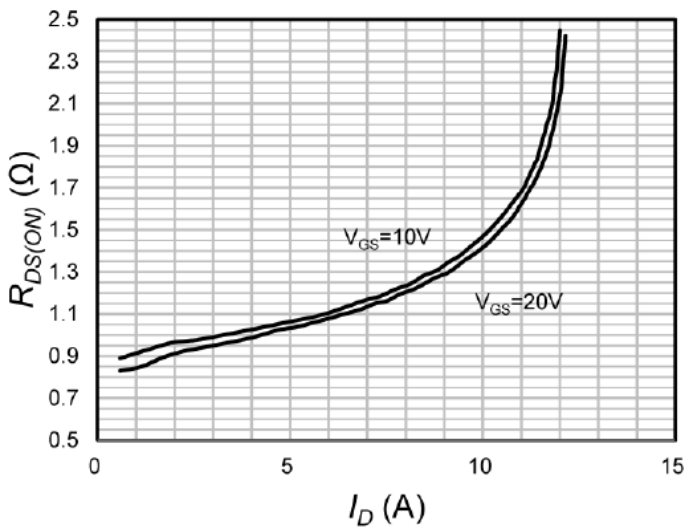


Fig. 4 -  $R_{DS(ON)} - T_J$

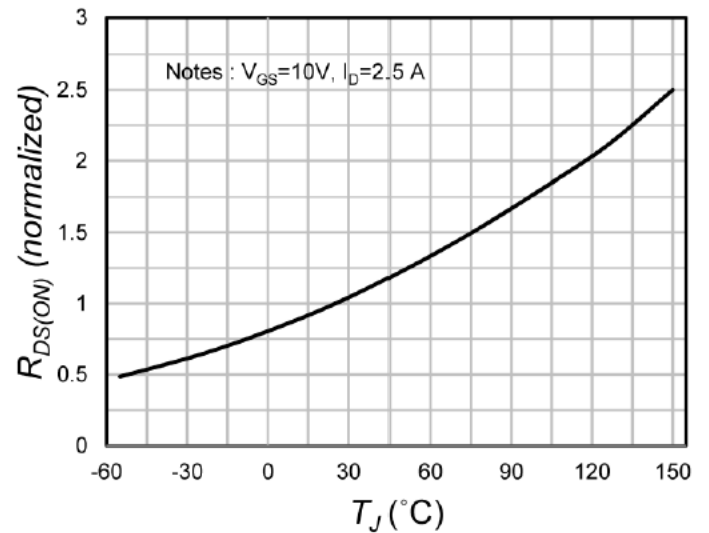


Fig. 5 - Gate Charge

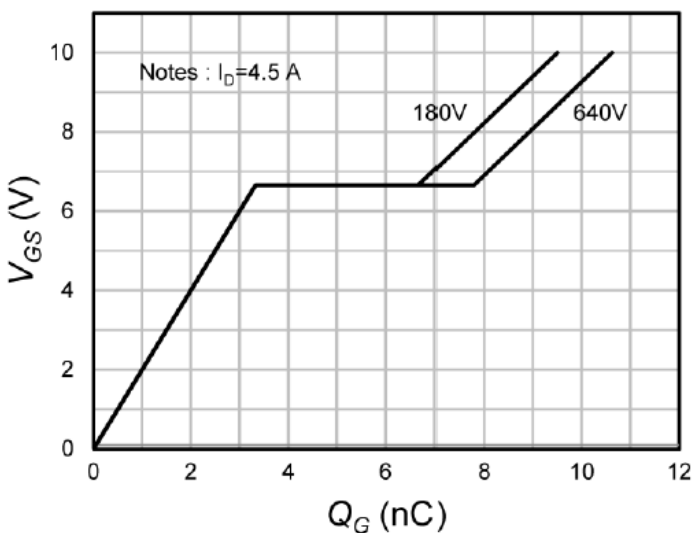
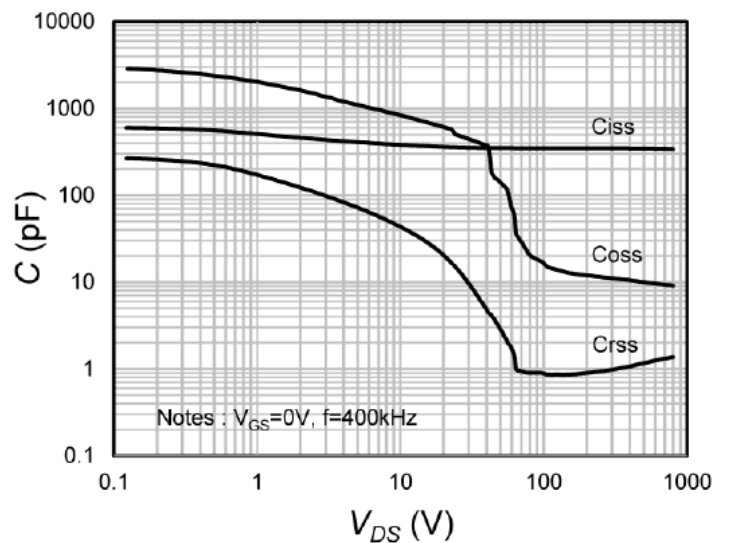


Fig. 6 - Capacitance Characteristics



## Curve Characteristics

Fig. 7 - Safe Operation Area

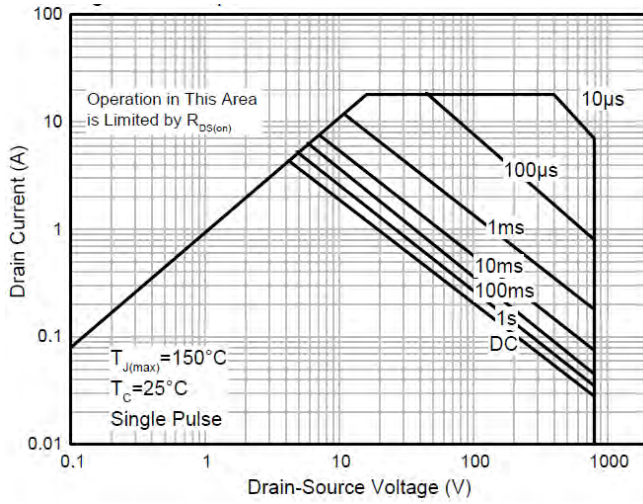
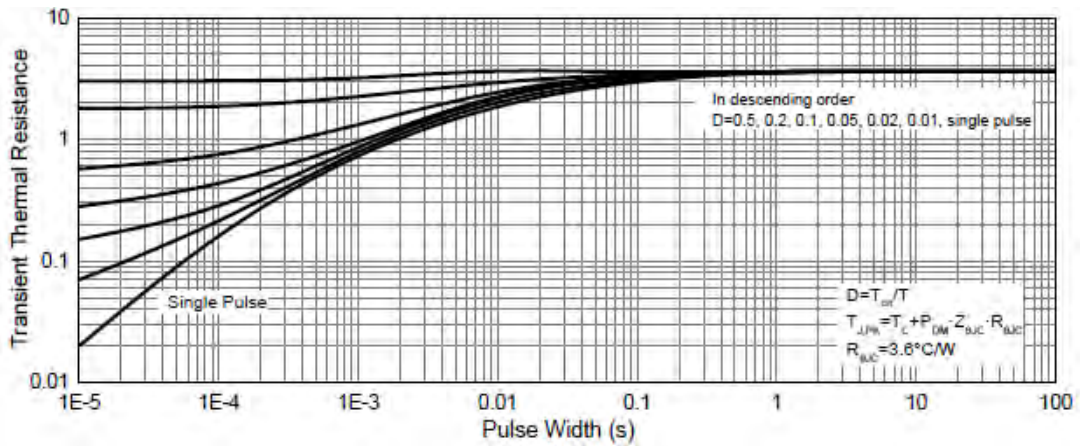


Fig.8 - Maximum Transient Thermal Impedance



## Ordering Information

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

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