

Features

- Very Low FOM $R_{DS(on)} \times Q_g$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

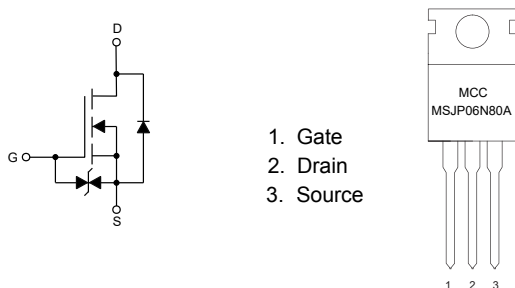
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.6°C/W Junction to Case

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 1)	I_{DM}	18	A
Single Pulse Avalanche Energy ^(Note 2)	E_{AS}	170	mJ
Total Power Dissipation	$T_C=25^\circ C$ P_D	35	W

Note: 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

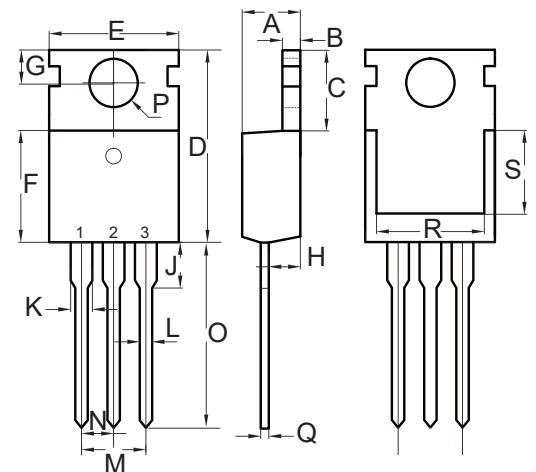
2. $V_{DD}=50V$, $R_G=25\Omega$, Starting $T_J=25^\circ C$.

Internal Structure and Marking Code



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

TO-220AB(H)



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.172	0.188	4.37	4.77	
B	0.049	0.057	1.25	1.45	
C	0.246	0.270	6.25	6.85	
D	0.594	0.634	15.10	16.10	
E	0.382	0.406	9.70	10.30	
F	0.346	0.370	8.80	9.40	
G	0.102	0.118	2.60	3.00	
H	0.087	0.102	2.20	2.60	
J	-----	0.134	-----	3.40	
K	0.046	0.058	1.17	1.47	
L	0.028	0.037	0.70	0.95	
M	0.200	BSC	5.08	BSC	
N	0.100	BSC	2.54	BSC	
O	0.502	0.543	12.75	13.80	
P	0.134	0.150	3.40	3.80	Φ
Q	0.016	0.026	0.40	0.65	
R	0.276	-----	7.00	-----	
S	0.217	-----	5.50	-----	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	800			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=800V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	3.5	4.5	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.5A$		0.95	1.2	Ω
Gate Resistance	R_G	$V_{GS}=0V, f=1.0MHz$		21		Ω
Dynamic Characteristics^(Note 4)						
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		
Drain-Source Body Diode Characteristics						
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}	$V_{DD}=100V, I_F=I_S, di_F/dt=100A/\mu s$		380		ns
Reverse Recovery Charge	Q_{rr}				2	μC
Reverse Recovery Current	I_{rrm}				11	A

Note 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$.

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

Curve Characteristics

Fig. 1 - Typical Output Characteristics

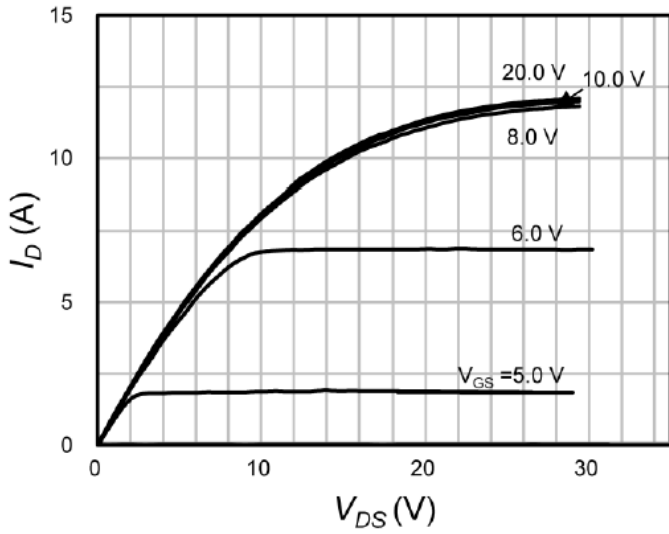


Fig. 2 - Transfer Characteristics

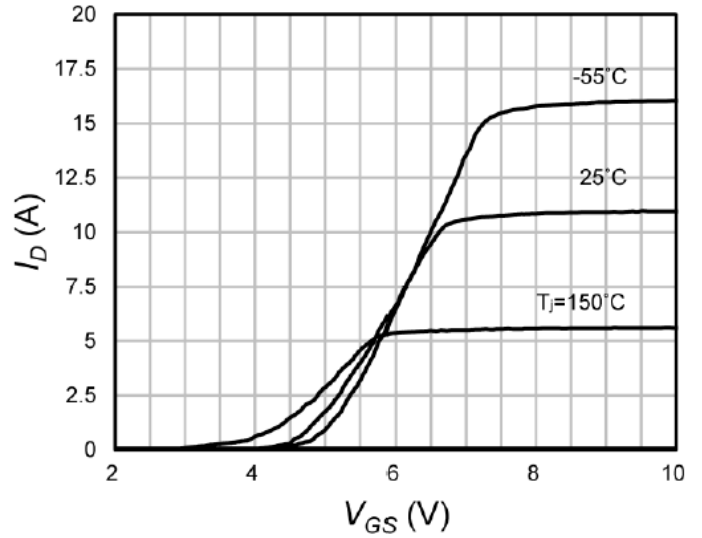


Fig. 3 - $R_{DS(ON)} - I_D$

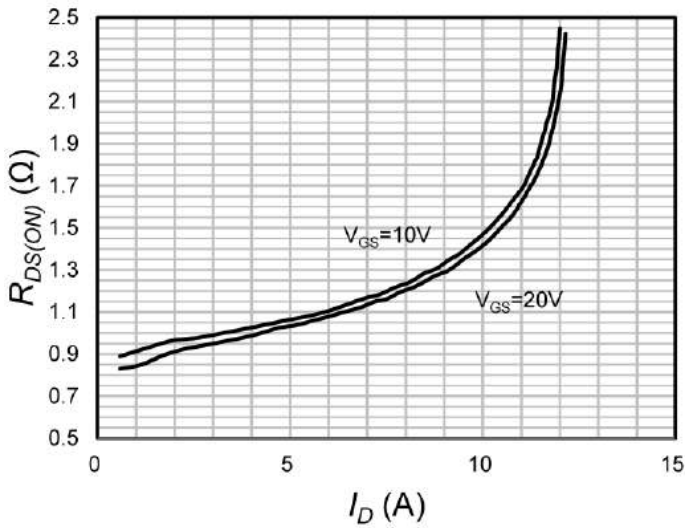


Fig. 4 - $R_{DS(ON)} - T_J$

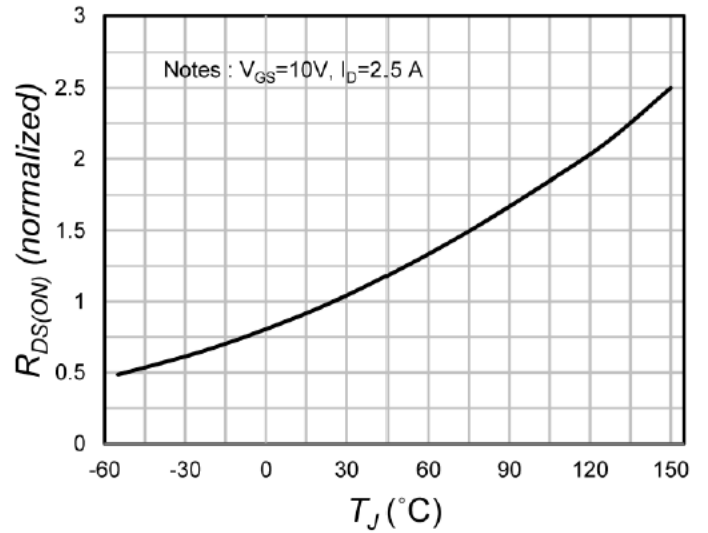


Fig. 5 - Gate Charge

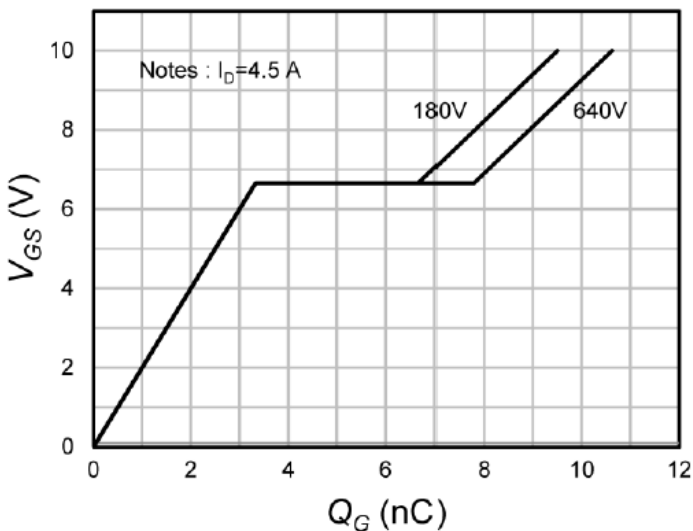
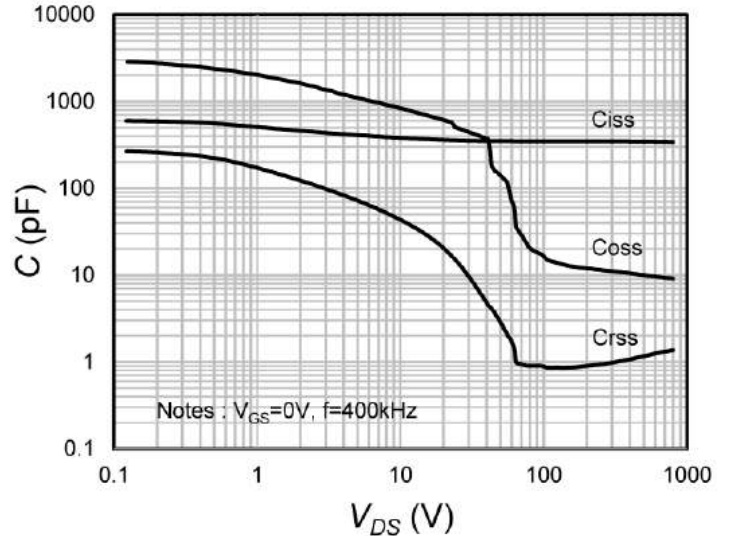


Fig. 6 - Capacitance Characteristics



Curve Characteristics

Fig. 7 - Safe Operation Area

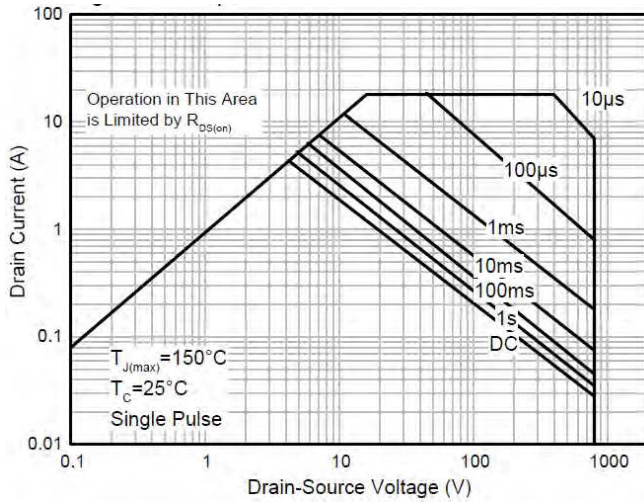
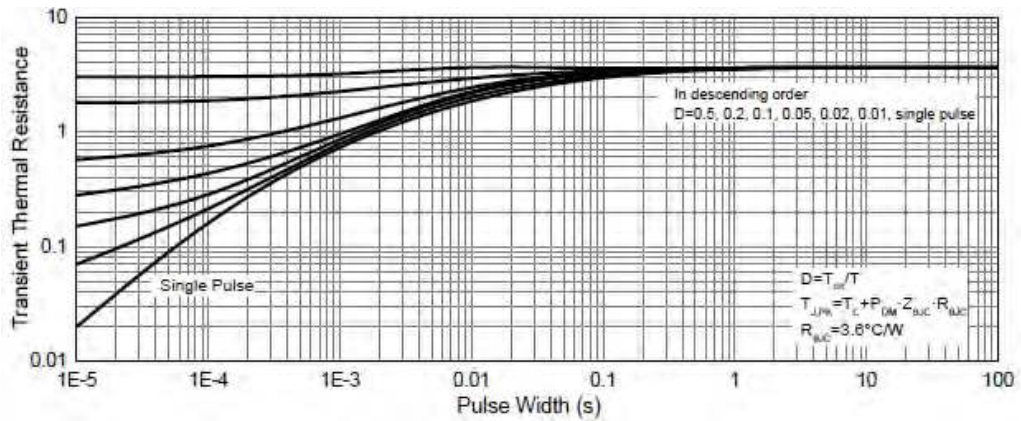


Fig.8 - Maximum Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-BP	Bulk:50pcs/Tube, 1Kpcs/Box, 5Kpcs/Carton

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-BP-HF

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