Features

- Split Gate Trench MOSFET Tenchnology
- Excellent Package For Heat Dissipation
- High density cell design for low $R_{DS(ON)}$
- Halogen Free. “Green” Device (Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2)("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

Maximum Ratings

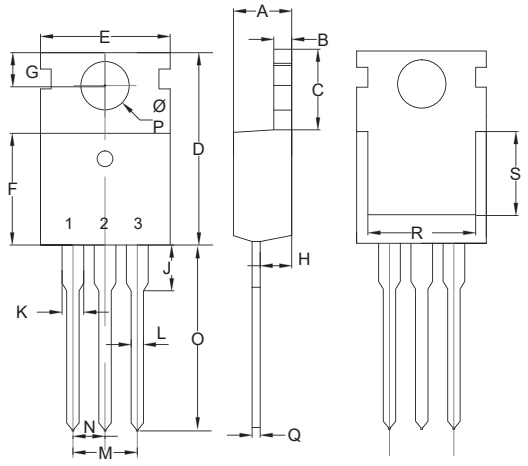
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 40°C/W Junction to Ambient(Note3)
- Thermal Resistance: 0.7°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	82	A
	T_C=100°C		51	
Pulsed Drain Current (Note4)		I_{DM}	360	A
Total Power Dissipation (Note5)		P_D	178	W
Single Pulsed Avalanche Energy(Note6)		E_{AS}	400	mJ

Note:

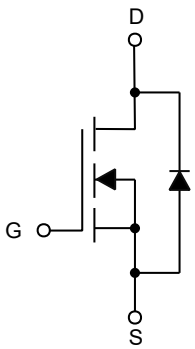
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. P_D is based on max. junction temperature, using junction-case thermal resistance.
6. T_J=25°C, V_{DD}=75V, V_{GS}=10V,R_G=25Ω, L=2mH.

TO-220AB(H)

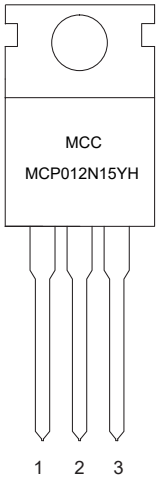


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.172	0.188	4.37	4.77	
B	0.049	0.057	1.25	1.45	
C	0.246	0.270	6.25	6.85	
D	0.594	0.634	15.10	16.10	
E	0.382	0.406	9.70	10.30	
F	0.346	0.370	8.80	9.40	
G	0.102	0.118	2.60	3.00	
H	0.087	0.102	2.20	2.60	
J	-----	0.134	-----	3.40	
K	0.046	0.058	1.17	1.47	
L	0.028	0.037	0.70	0.95	
M	0.200		5.08		TYP.
N	0.100		2.54		TYP.
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	-----	

Internal Structure and Marking Code



1. Gate
2. Drain
3. Source



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	150			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=150V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2	3	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=45A		9.6	12	mΩ
Gate Resistance	R_g	f=1MHz, Open drain		1		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				90	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=45A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=37.5A,di/dt=100A/μs		87		ns
Reverse Recovery Charge	Q_{rr}			245		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=75V,V_{GS}=0V,f=1MHz		3750		pF
Output Capacitance	C_{oss}			290		
Reverse Transfer Capacitance	C_{rss}			6		
Total Gate Charge	Q_g	V_{DS}=75V,V_{GS}=10V,I_D=45A		48		nC
Gate-Source Charge	Q_{gs}			15		
Gate-Drain Charge	Q_{gd}			10		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=75V, V_{GS}=10V, R_G=2.2Ω, I_D=45A		16		ns
Turn-On Rise Time	t_r			82		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			6		

Curve Characteristics

Fig.1 - Typical Output Characteristics

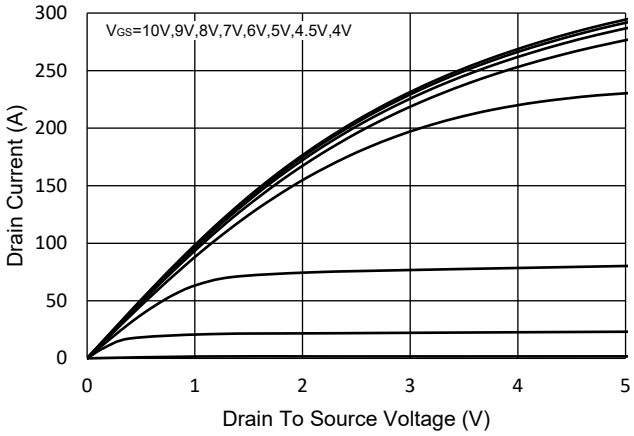


Fig.2 - Transfer Characteristics

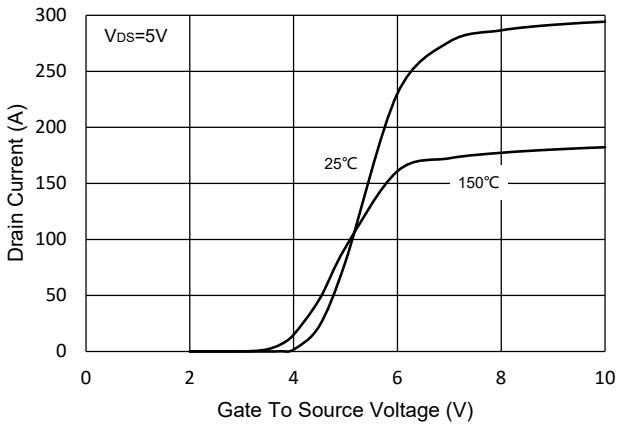


Fig.3 - $R_{DS(ON)}$ - V_{GS}

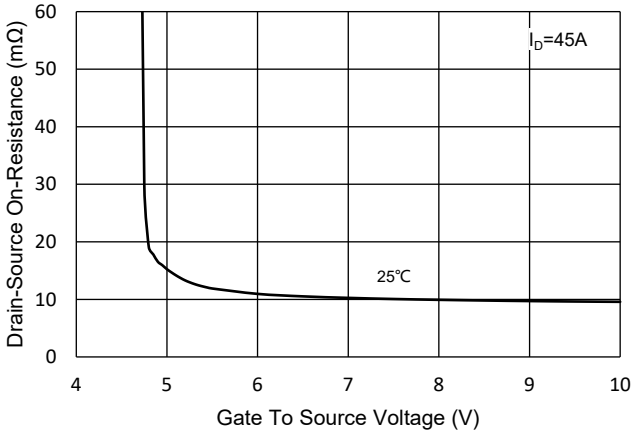


Fig. 4 - $R_{DS(ON)}$-I_D

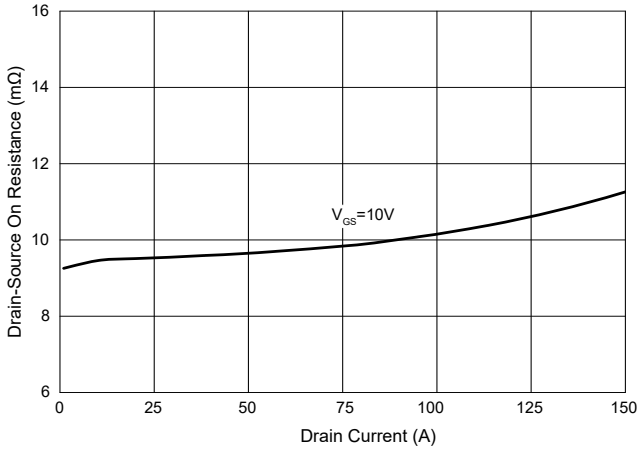


Fig. 5 - Capacitance Characteristics

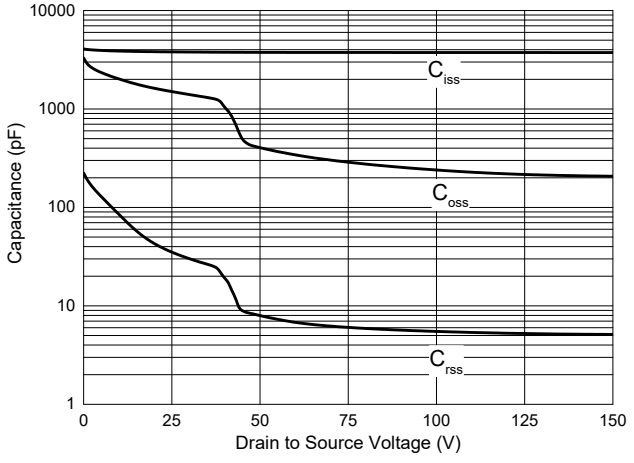
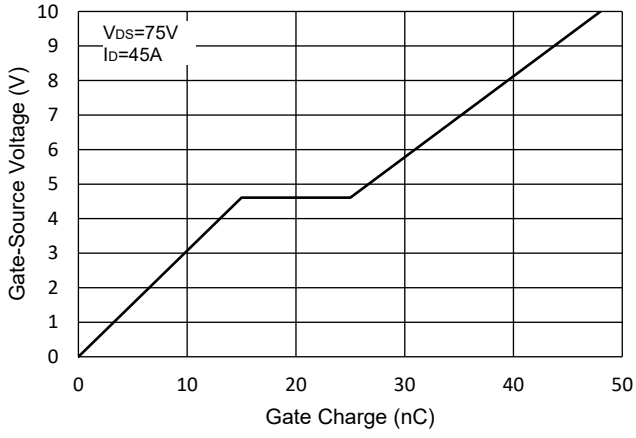


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

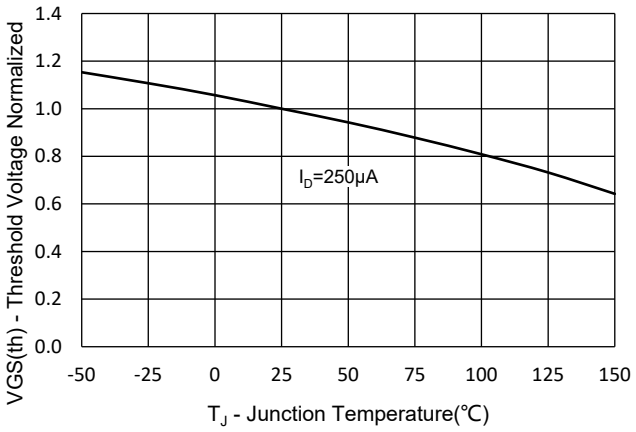


Fig.8 - Normalized On Resistance Characteristics

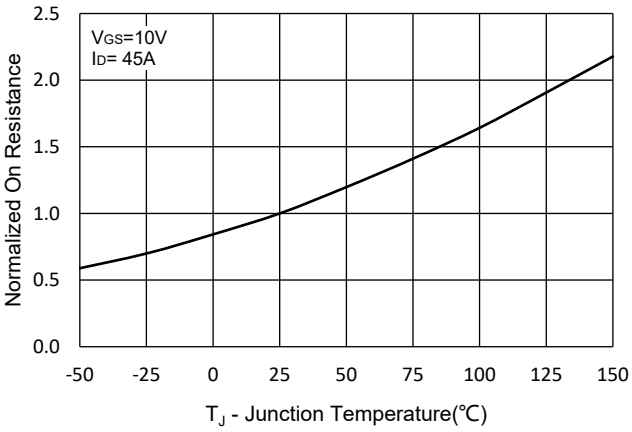


Fig.9 - I_S - V_{SD}

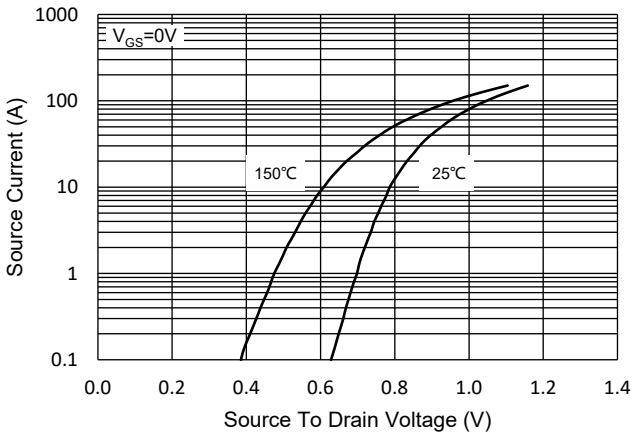


Fig. 10 - Drain Current

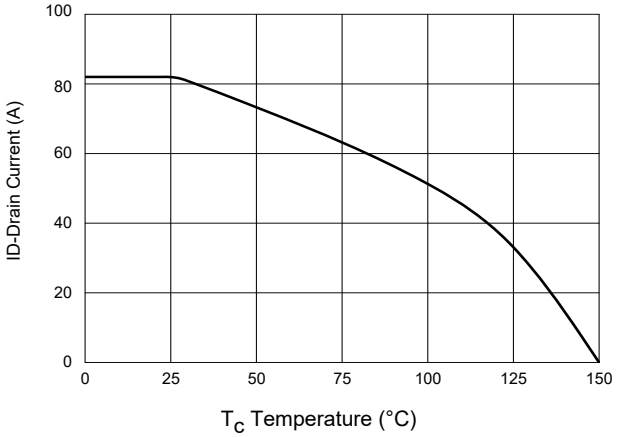
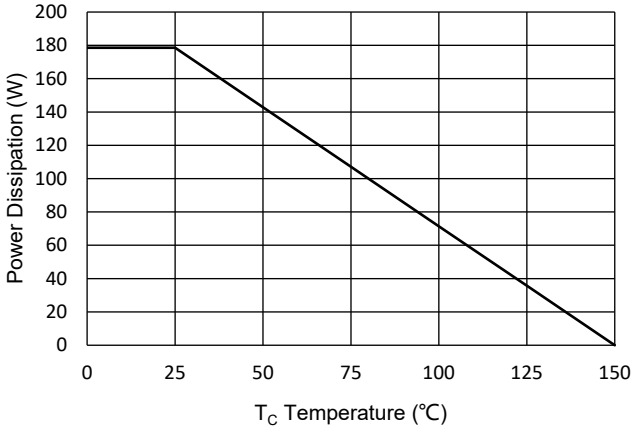


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

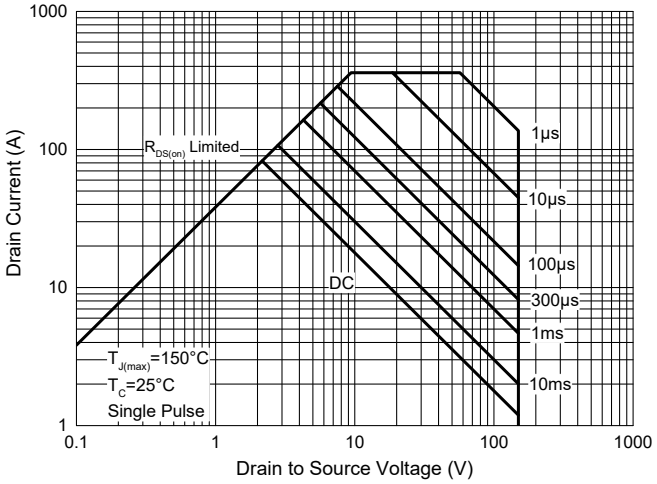
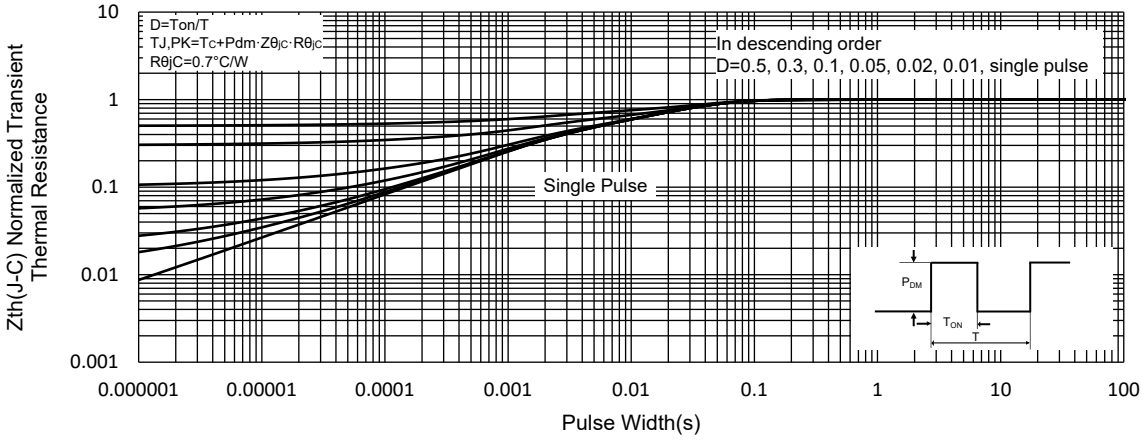


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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