Features

- Low $R_{DS(on)}$ & FOM
- Extremely Low Switching Loss
- Excellent Stability and Uniformity
- Fast Switching and Soft Recovery
- Halogen Free. “Green” Device (1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

Maximum Ratings

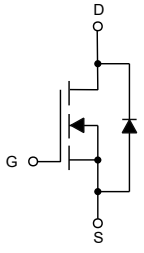
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.48°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Volltage	V_{GS}	±20	V
Continuous Drain Current (2)	I_D	200	A
Pulsed Drain Current (3)	I_{DM}	600	A
Total Power Dissipation	P_D	260	W
Single Pulsed Avalanche Energy(4)	E_{AS}	162	mJ

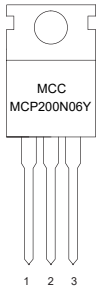
Note:

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 maximum current rating is package limited.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. V_{DD}=50V, R_G=25Ω, L=1mH, I_{AS}=18A, starting T_J=25 °C.

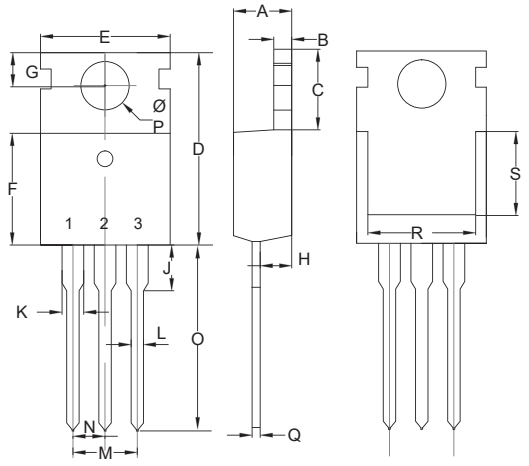
Internal Structure and Marking Code



1. Gate
2. Drain
3. Source



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	-----	

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	2	2.5	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		2.8	3.2	mΩ
Gate Resistance	R_G	f=1MHz, Open drain		2.37		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				200	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=25A, dI_F/dt=100A/μs		58		ns
Reverse Recovery Charge	Q_{rr}			63		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		4165		pF
Output Capacitance	C_{oss}			900		
Reverse Transfer Capacitance	C_{rss}			59		
Total Gate Charge	Q_g	V_{DS}=50V,V_{GS}=10V,I_D=50A		65		nC
Gate-Source Charge	Q_{gs}			9.8		
Gate-Drain Charge	Q_{gd}			11.9		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=30V, V_{GS}=10V, R_G=2Ω, I_{DS}=25A		22.5		ns
Turn-On Rise Time	t_r			6.7		
Turn-Off Delay Time	$t_{d(off)}$			80.3		
Turn-Off Fall Time	t_f			26.9		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

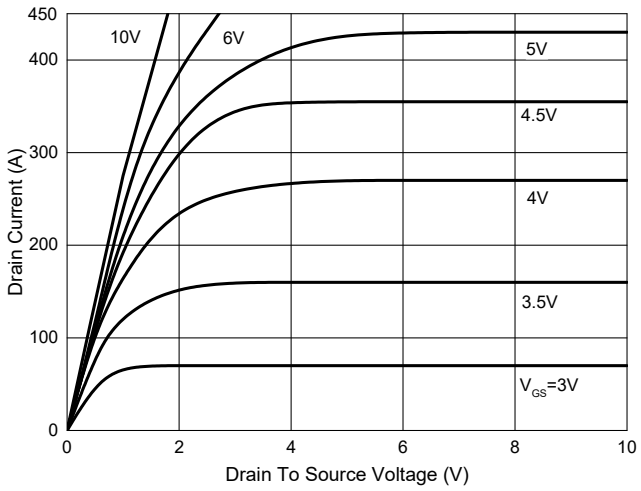


Fig. 2 - Transfer Characteristics

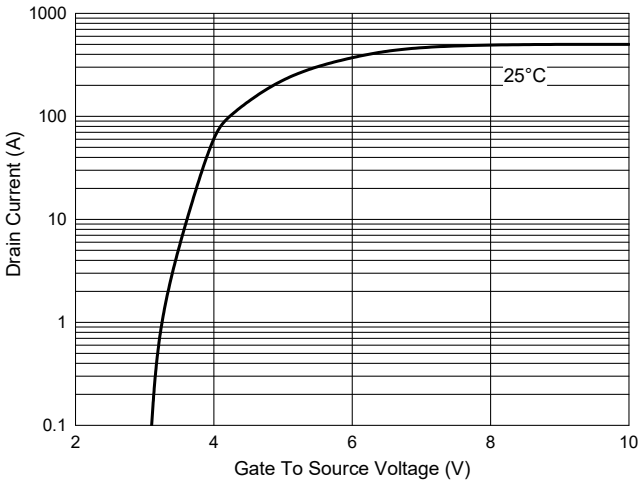


Fig. 3 - $R_{DS(ON)}$—I_D

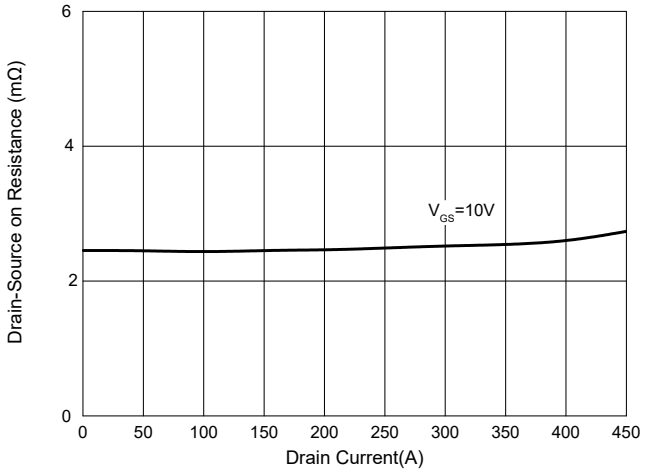


Fig. 4 - Drain-Source on Resistance

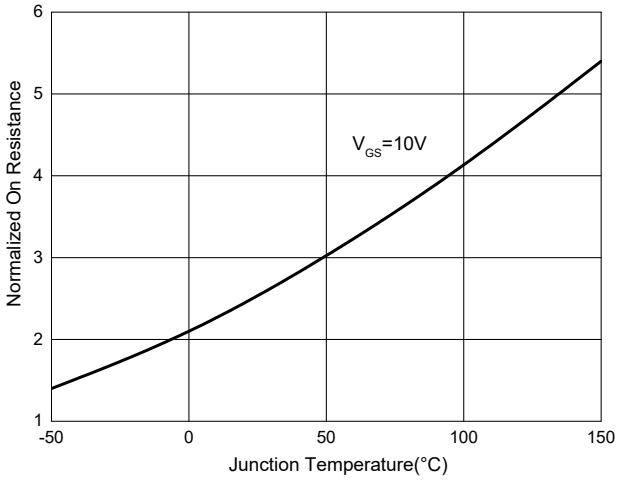


Fig. 5 - $R_{DS(ON)}$—V_{GS}

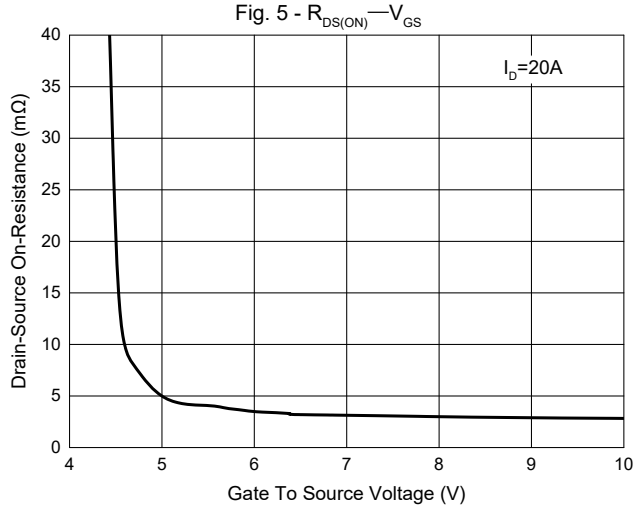
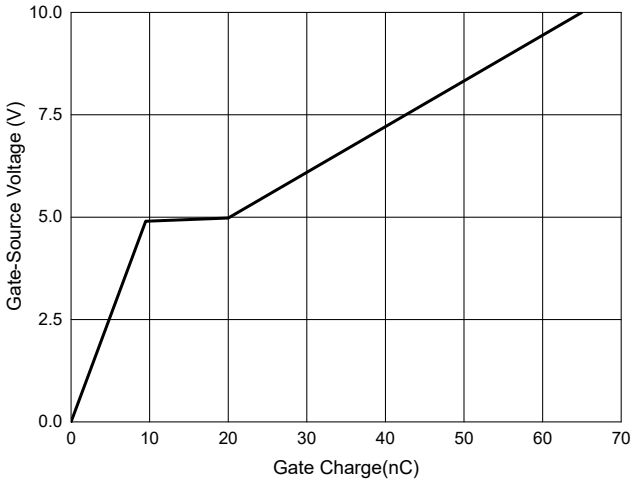


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Capacitance Characteristics

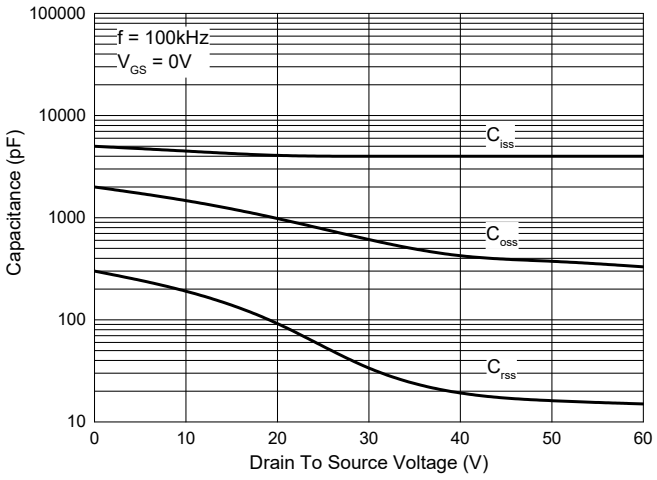
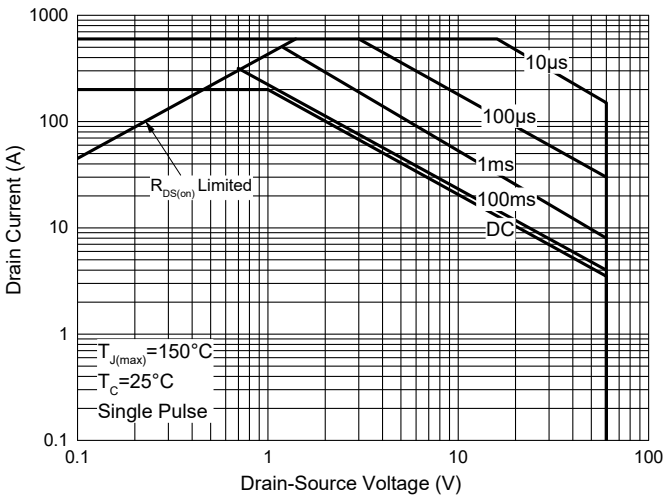


Fig. 8 - Safe Operation Area



Ordering Information

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