

### Features

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

### Maximum Ratings

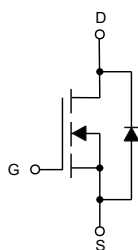
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.61°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current <sup>(2)</sup>	$I_D$	75	A
Pulsed Drain Current <sup>(3)</sup>	$I_{DM}$	280	A
Total Power Dissipation	$P_D$	205	W
Single Pulsed Avalanche Energy <sup>(4)</sup>	$E_{AS}$	200	mJ

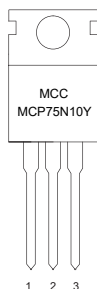
Note:

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.  $V_{DD}=50V$ ,  $R_G=25\Omega$ ,  $L=0.5mH$ , starting  $T_J=25^\circ C$ .

### Internal Structure and Marking Code

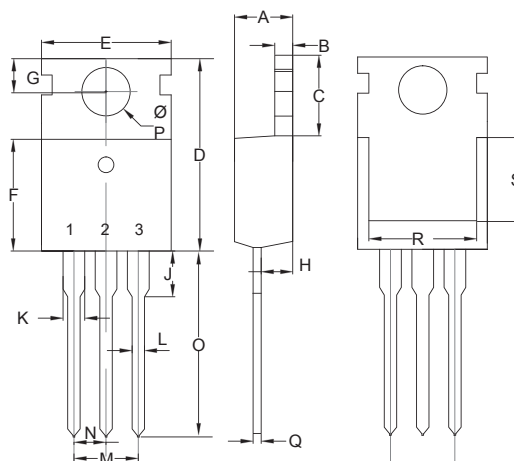


1. Gate
2. Drain
3. Source



## N-CHANNEL 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		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
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=100V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	2.8	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		7.2	8.6	m $\Omega$
		$V_{GS}=6V, I_D=20A$		10	13	m $\Omega$
Gate Resistance	$R_G$	f=1MHz, Open drain		0.68		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				75	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=20A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$I_S=20A, di/dt=100A/\mu s$		51.5		ns
Reverse Recovery Charge	$Q_{rr}$			84		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		2270		pF
Output Capacitance	$C_{oss}$			797		
Reverse Transfer Capacitance	$C_{riss}$			36		
Total Gate Charge	$Q_g$	$V_{DS}=50V, V_{GS}=10V, I_D=25A$		32		nC
Gate-Source Charge	$Q_{gs}$			11.1		
Gate-Drain Charge	$Q_{gd}$			4.78		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=50V, V_{GS}=10V, R_G=2.2\Omega, I_D=25A$		51		ns
Turn-On Rise Time	$t_r$			14.4		
Turn-Off Delay Time	$t_{d(off)}$			69.2		
Turn-Off Fall Time	$t_f$			20.6		

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

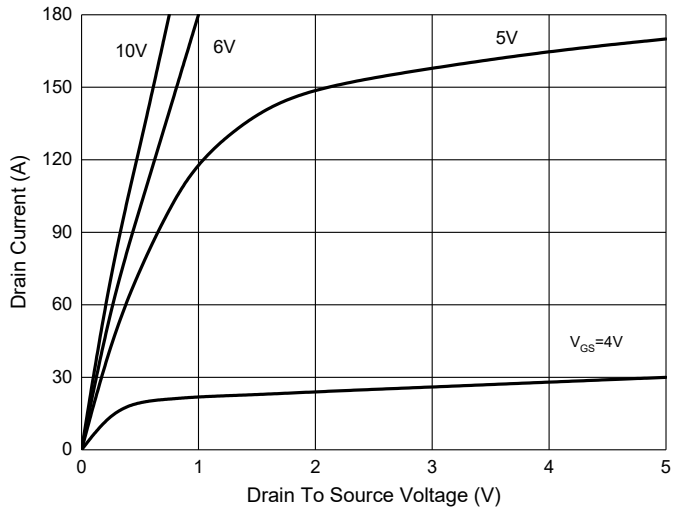


Fig. 2 - Transfer Characteristics

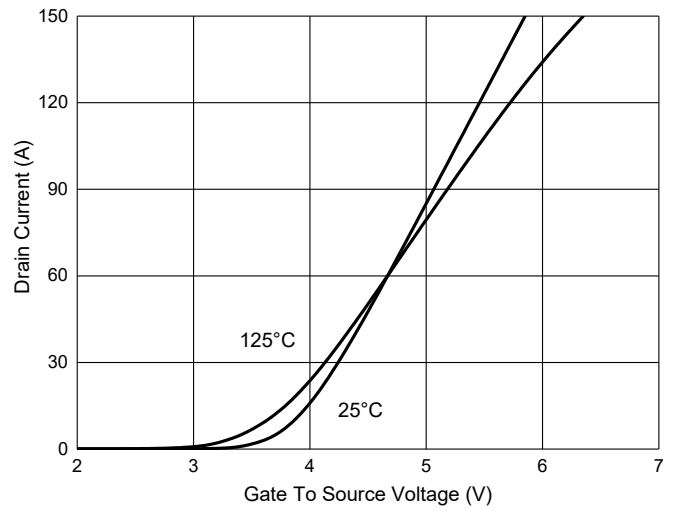


Fig. 3 - Normalized On Resistance Characteristics

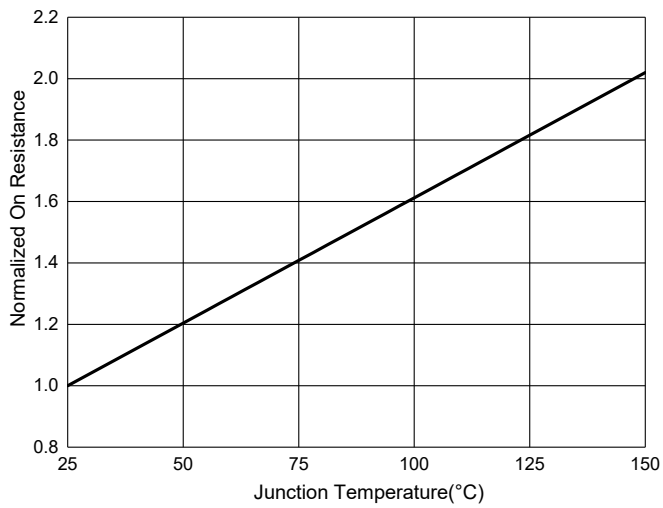


Fig. 4 - Capacitance Characteristics

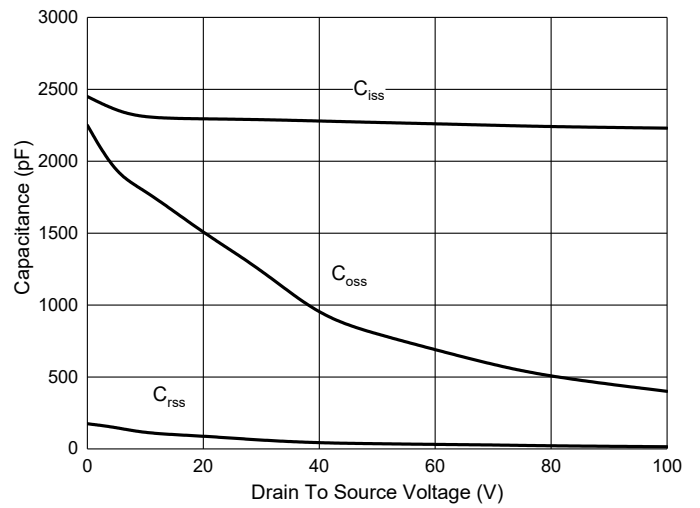


Fig. 5 - Gate Charge

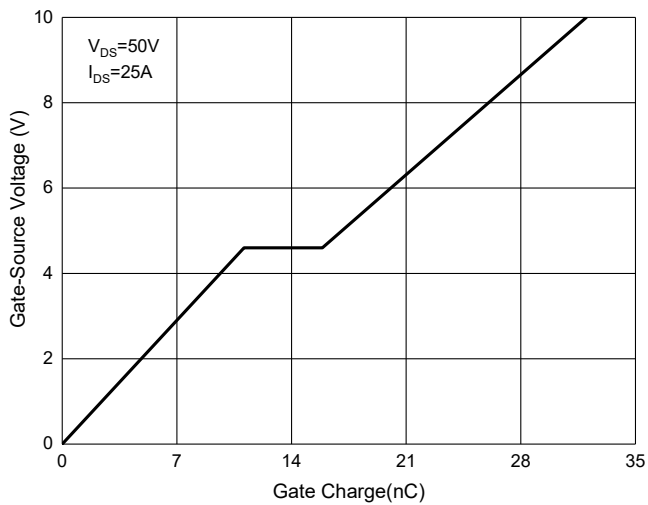
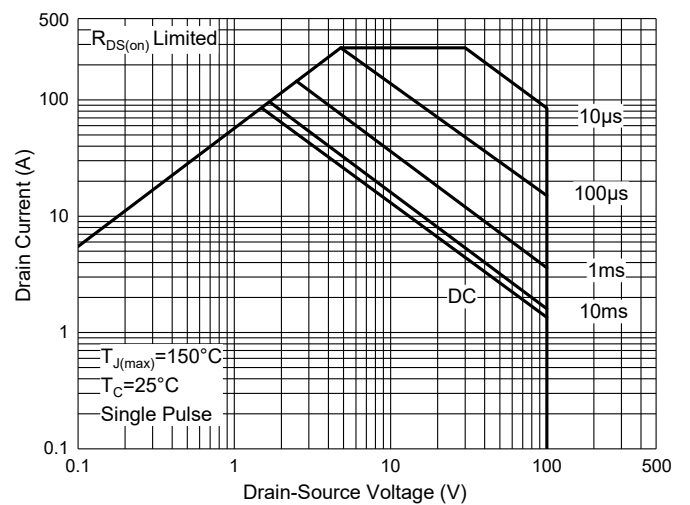


Fig. 6 - Safe Operation Area



## Ordering Information

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

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