

Features

- High Current Rating
- Lower $R_{DS(ON)}$
- Lower Capacitance
- Lower Total Gate Charge
- Avalanche Energy Specified
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free . "Green" Device (Note1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

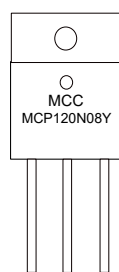
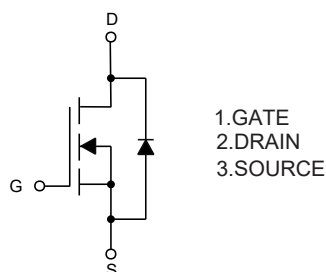
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 51.78°C/W Junction to Ambient
- Thermal Resistance: 0.66°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain -Source Voltage		V _{DS}	80	V
Gate -Source Voltlage		V _{GS}	±20	V
Drain Current-Continuous	T _C =25°C	I _D	120	A
	T _C =100°C		76	
Pulsed Drain Current		I _{DM}	480	A
Continuous Drain-Source Diode Forward Current		I _S	120	A
Total Power Dissipation		P _D	190	W
Single Pulsed Avalanche Energy ^(Note2)		E _{AS}	702	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.

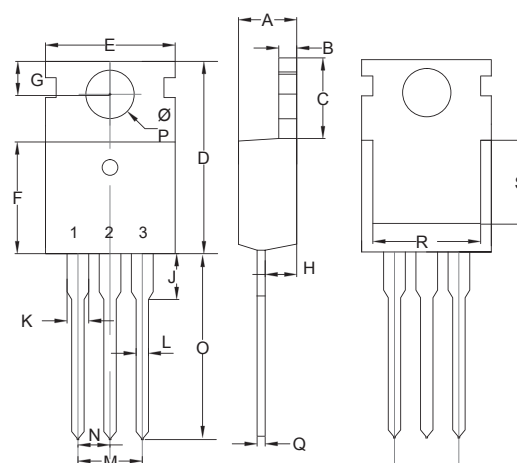
2. $L=2\text{mH}$, $I_{AS}=26.5\text{A}$, $V_{DD}=50\text{V}$, $V_{GS}=10\text{V}$, Starting $T_J=25^\circ\text{C}$

Internal Structure and Marking Code



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 (Ta=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	80			V
Gate-Threshold Voltage ^(Note3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.0	4.0	V
Gate-Body Leakage Current ^(Note3)	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
Drain-Source On-Resistance ^(Note3)	R _{DS(on)}	V _{GS} =10V, I _D =20A		3.9	4.8	mΩ
Drain- Source Diode Forward Voltage ^(Note3)	V _{SD}	V _{GS} =0V, I _S =20A		0.8	1.2	V
Gate resistance	R _G	f=1MHz,Open drain		2.0		Ω
Dynamic Characteristics						
Input Capacitance ^(Note4)	C _{iss}	V _{DS} =40V,V _{GS} =0V, f=1MHz		5666		pF
Output Capacitance ^(Note4)	C _{oss}			860		
Reverse Transfer Capacitance ^(Note4)	C _{rss}			7.5		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =40V,V _{GS} =10V,I _D =50A		73		nC
Gate-Source Charge	Q _{gs}			25		
Gate-Drain Charge	Q _{gd}			12		
Reverse Recovery Time	t _{rr}	I _F =50A,di/dt=100A/μs		44		ns
Reverse Recovery Charge	Q _{rr}			50		nC
Turn-on Delay Time ^(Note4)	t _{d(on)}	V _{DD} =40V,V _{GS} =10V,R _G =3Ω, I _D =50A		27		ns
Turn-on Rise Time ^(Note4)	t _r			32		
Turn-off Delay Time ^(Note4)	t _{d(off)}			54		
Turn-off Fall Time ^(Note4)	t _f			17		

Note: 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

4. These Parameters Have No Way to Verify

Curve Characteristics

Fig. 1 - Typical Output Characteristics

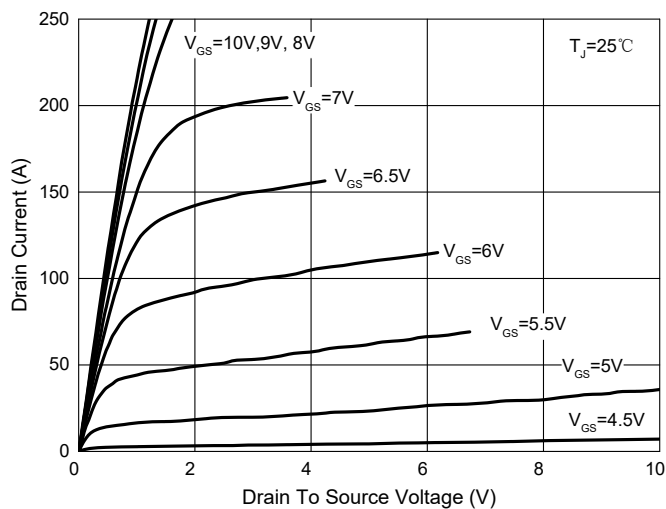


Fig. 2 - Transfer Characteristics

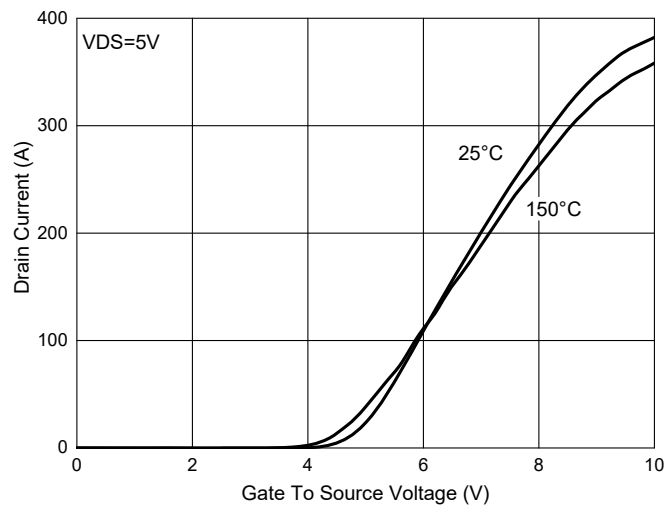


Fig. 3 - Normalized On Resistance Characteristics

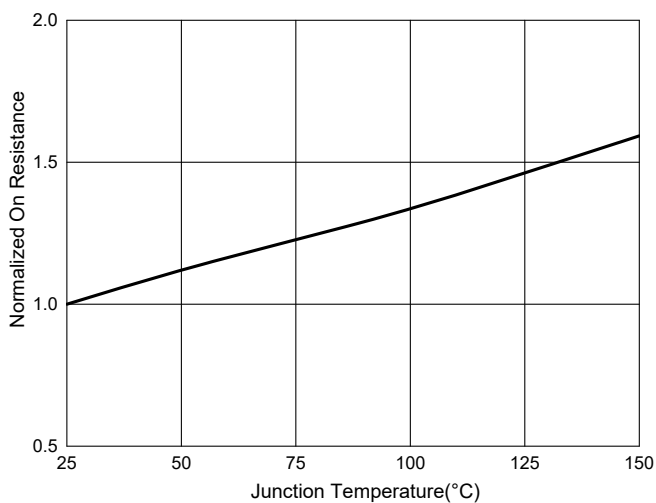


Fig. 4 - Gate Charge

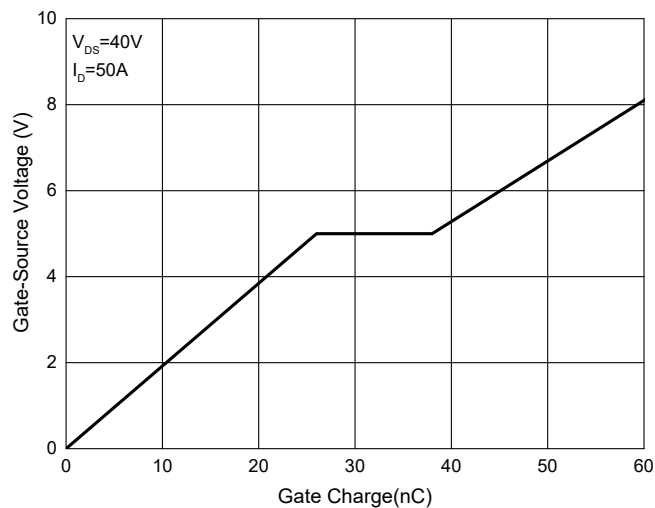


Fig. 5 - Capacitance Characteristics

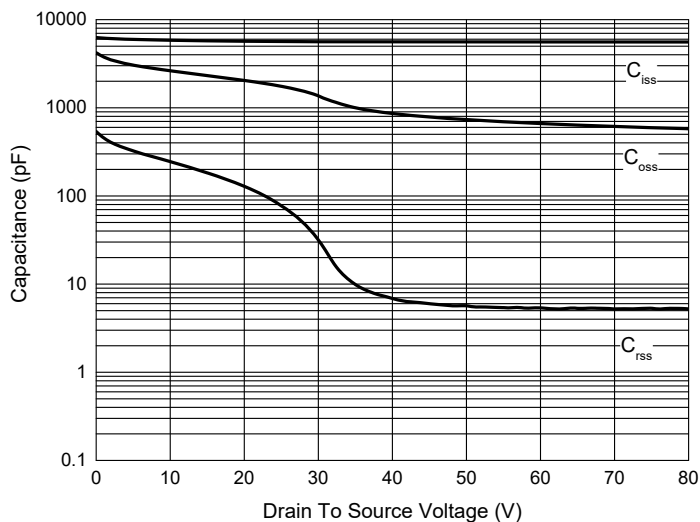
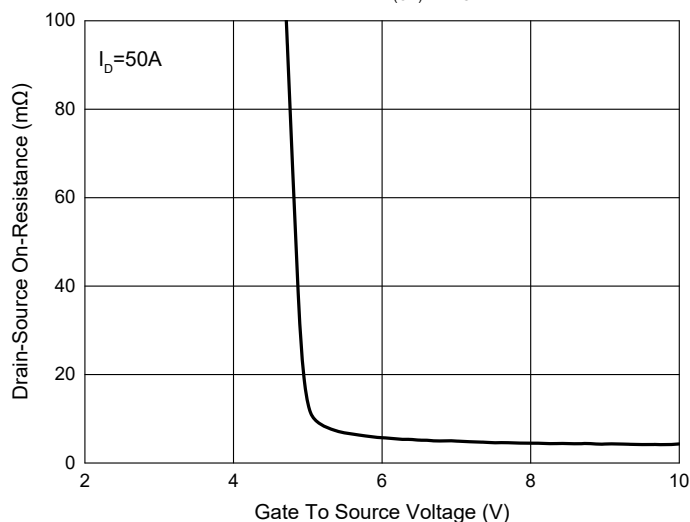


Fig. 6 - $R_{DS(ON)} - V_{GS}$



Ordering Information

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

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