Features

- Excellent Stability and Uniformity
- Split Gate Trench Mosfet Technology
- Lower $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free ."Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Moisture Sensitivity Level 1

N-CHANNEL MOSFET

Maximum Ratings

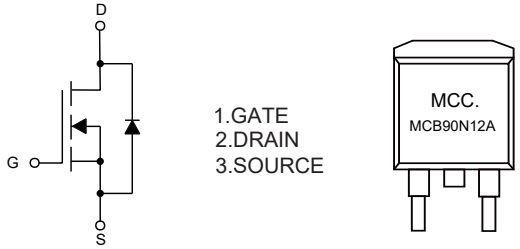
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.9°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain -Source Voltage		V_{DS}	120	V
Gate -Source Volltage		V_{GS}	±20	V
Drain Current-Continuous	T_C=25°C	I_D	90	A
	T_C=100°C		56	
Drain Current-Pulse(Note2)		I_{DM}	300	A
Power Dissipation		P_D	138	W
Single Pulsed Avalanche Energy(Note3)		E_{AS}	441	mJ

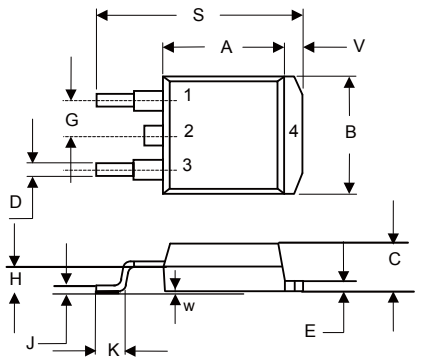
Notes:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Pulse Width Limited by Maximum Junction Temperature.
3. EAS Condition:T_J=25℃, V_{DD}=50V,V_G=10V,Rg=25Ω,L=2mH,I_{AS}=21A.

Internal Structure and Marking Code

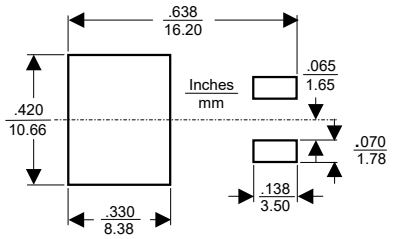


D2-PAK



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.331	0.370	8.40	9.40	
B	0.378	0.417	9.60	10.60	
C	0.165	0.189	4.20	4.80	
D	0.027	0.037	0.68	0.94	
E	0.045	0.055	1.14	1.40	
G	0.010		2.54		TYP.
H	0.096	0.134	2.43	3.40	
J	0.011	0.025	0.28	0.64	
K	0.071	0.131	1.80	3.32	
S	0.575	0.625	14.60	15.87	
V	0.042	0.058	1.07	1.47	
W	0.000	0.010	0.00	0.25	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	120			V
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V, V_{GS}=0V,T_J=25°C			1	uA
		V_{DS}=120V, V_{GS}=0V,T_J=150°C			100	
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	2.0	3.0	V
Drain-Source On-Resistance (Note4)	$R_{DS(on)}$	V_{GS}=10V, I_D=45A		7	9	mΩ
		V_{GS}=4.5V, I_D=20A		8.5	11	
Gate resistance	R_G	V_{GS}=0V,f=1MHz		0.7		Ω
Body Diode Voltage	V_{SD}	I_{SD}=45A, V_{GS}=0V		0.9	1.2	V
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=60V,V_{GS}=0V,f=1MHz		4600		pF
Output Capacitance	C_{oss}			430		
Reverse Transfer Capacitance	C_{rss}			23		
Total Gate Charge	Q_g	V_{DS}=60V,V_{GS}=10V,I_D=45A		72		nC
Gate-Source Charge	Q_{gs}			20		
Gate-Drain Charge	Q_{gd}			8		
Reverse Recovery Charge	Q_{rr}	I_F=45A,di/dt=100A/μs		195		
Reverse Recovery Time	t_{rr}			86		ns
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=60V,I_D=45A, V_{GS}=10V,R_G=2.2Ω		19		
Turn-On Rise Time	t_r			36		
Turn-Off Delay Time	$t_{d(off)}$			45		
Turn-Off Fall Time	t_f			45		

Note 4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤2%.

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

Curve Characteristics

Fig. 1 - Typical Output Characteristics

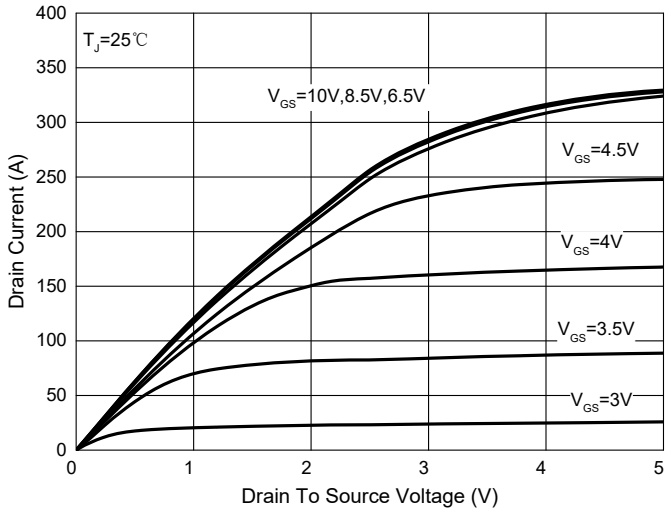


Fig. 2 - Transfer Characteristics

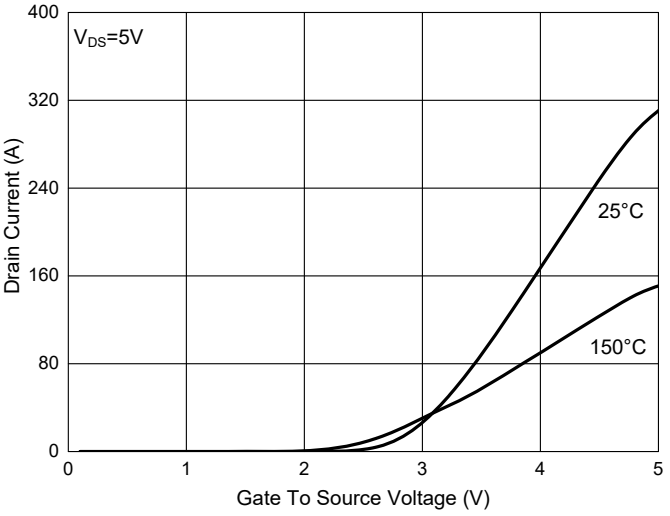


Fig. 3 - $R_{DS(ON)}$—I_D

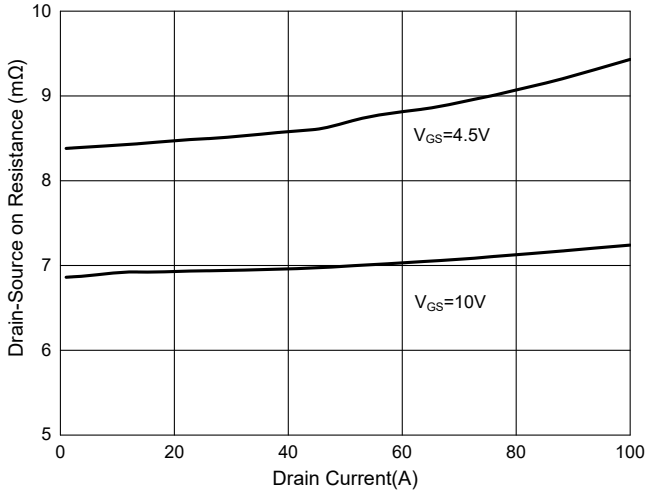


Fig. 4 - Normalized On Resistance Characteristics

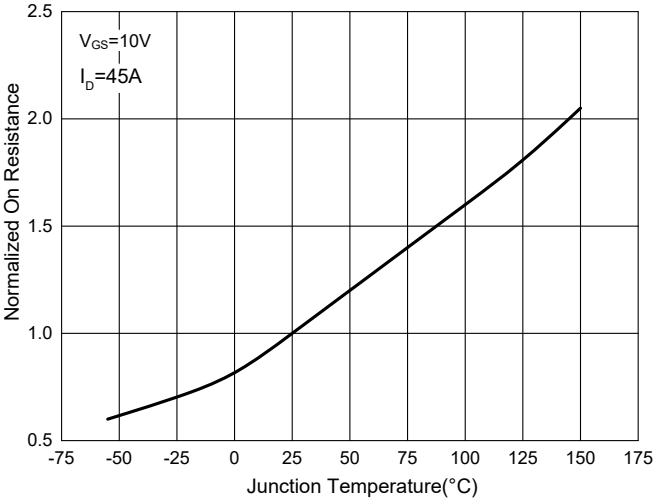


Fig. 5 - Gate Charge

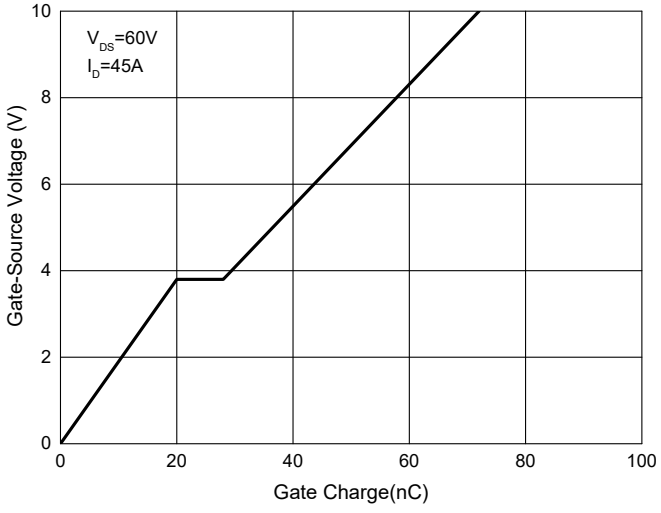
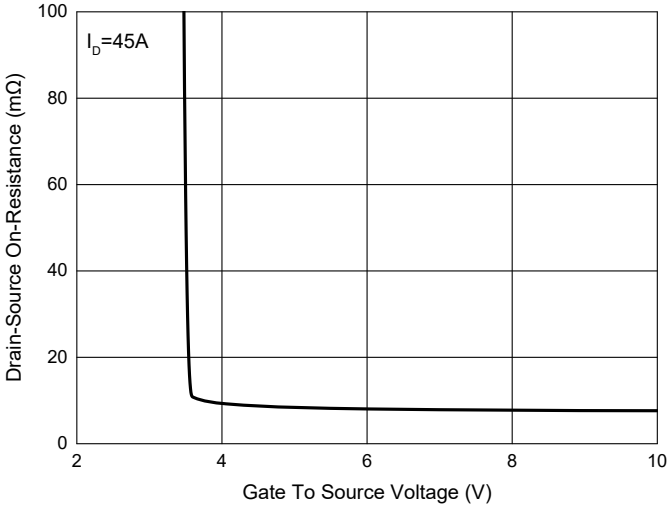


Fig. 6 - $R_{DS(ON)}$—V_{GS}



Curve Characteristics

Fig. 7 - Capacitance Characteristics

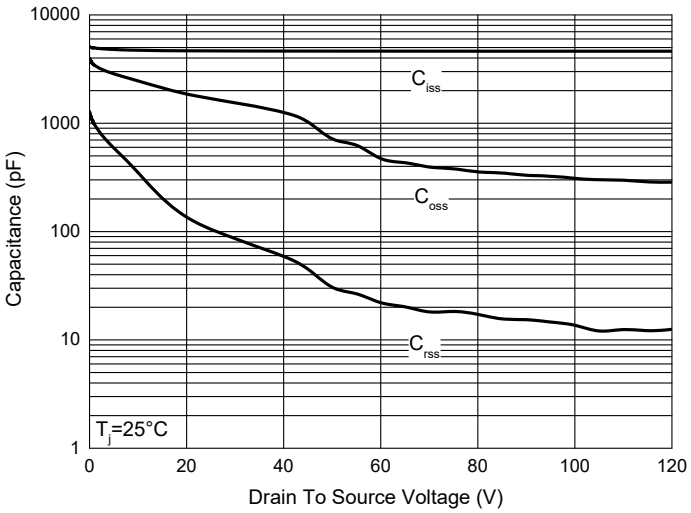


Fig. 8 - Power dissipation

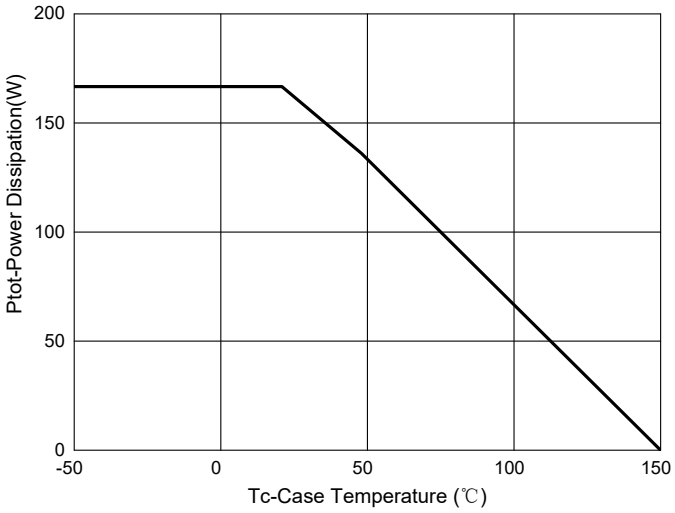


Fig. 9 - Safe Operation Area

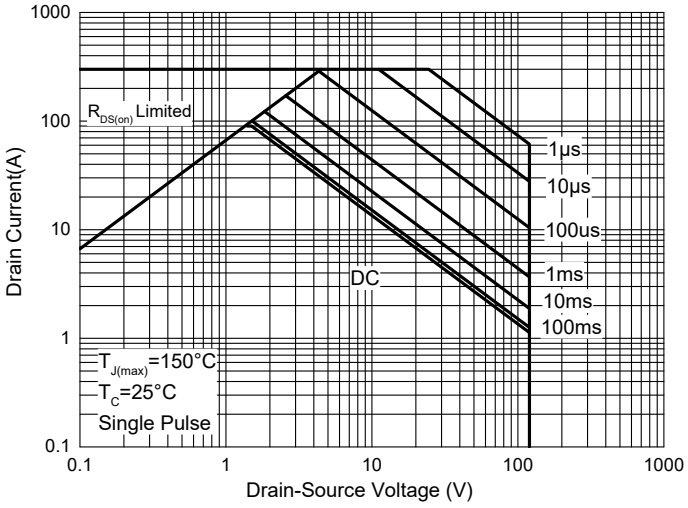
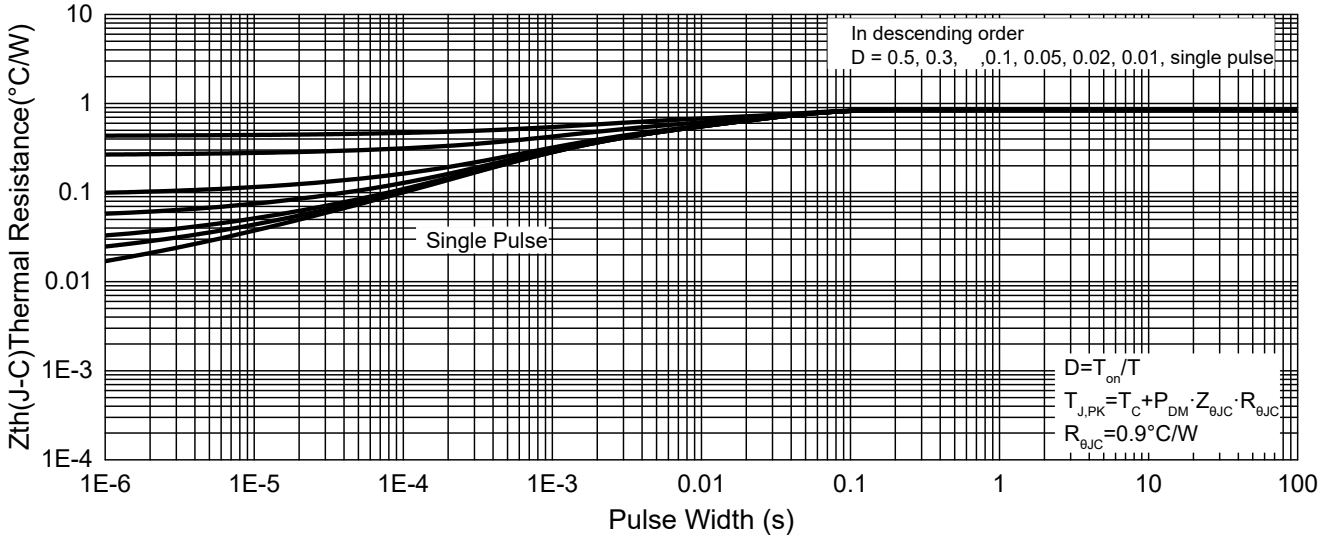


Fig. 10 - Maximum Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800pcs/Reel