

Features

- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free . “Green” Device ⁽¹⁾
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

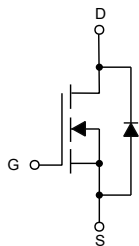
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.6°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	120
		$T_C=100^\circ C$	76
Pulsed Drain Current ⁽²⁾	I_{DM}	480	A
Avalanche Energy ⁽³⁾	E_{AS}	506	mJ
Total Power Dissipation	P_D	208	W

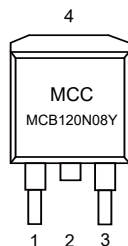
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.
3. $T_J=25^\circ C$, $L=0.5mH$, $I_{AS}=45A$, $V_{GS}=10V$, $V_{DD}=50V$.

Internal Structure and Marking Code

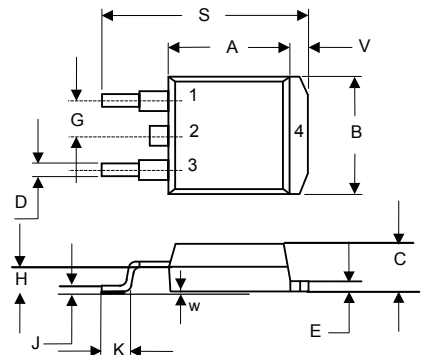


- 1. Gate
- 2,4. Drain
- 3. Source



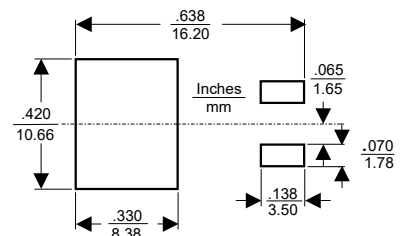
N-CHANNEL MOSFET

D2-PAK



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 Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	80			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$			1.0	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	3.0	4.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		3.6	4.5	m Ω
Gate resistance	R_G	f=1MHz, Open drain		2.0		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				120	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$		0.8	1.2	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=40V, V_{GS}=0V, f=1MHz$		5666		pF
Output Capacitance	C_{oss}			860		
Reverse Transfer Capacitance	C_{rss}			7.5		
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 Charge	Q_{rr}	$I_F=50A, di/dt=100A/\mu s$		50		
Reverse Recovery Time	t_{rr}			44		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=40V, V_{GS}=10V, R_G=3\Omega, I_D=50A$		27		ns
Turn-On Rise Time	t_r			32		
Turn-Off Delay Time	$t_{d(off)}$			54		
Turn-Off Fall Time	t_f			17		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

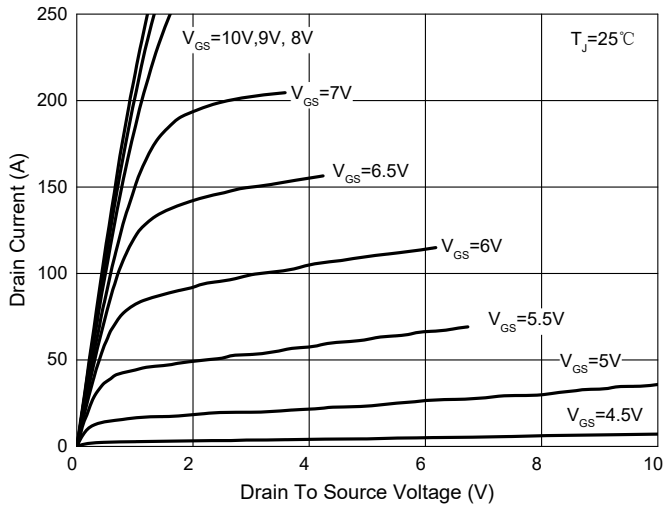


Fig. 2 - Transfer Characteristics

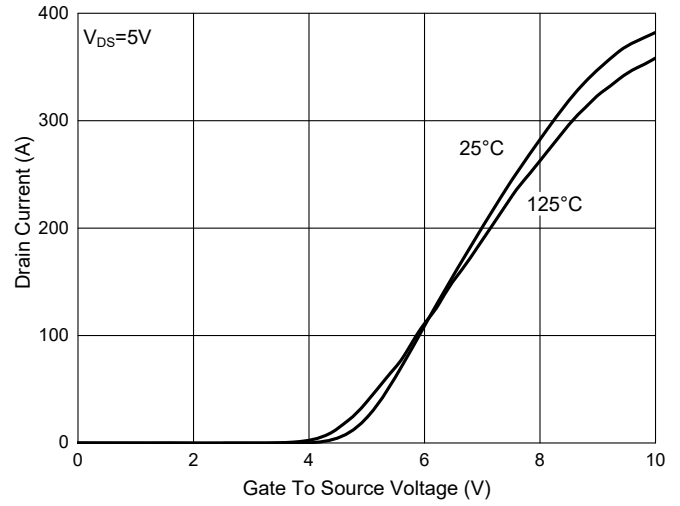


Fig. 3 - Normalized On Resistance Characteristics

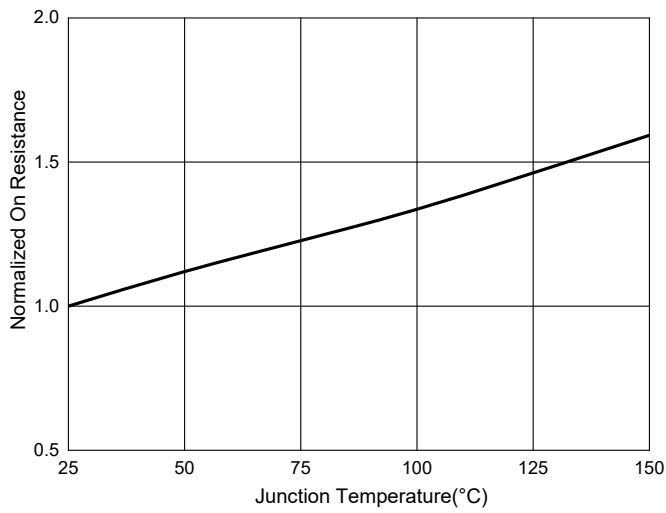


Fig. 4 - Gate Charge

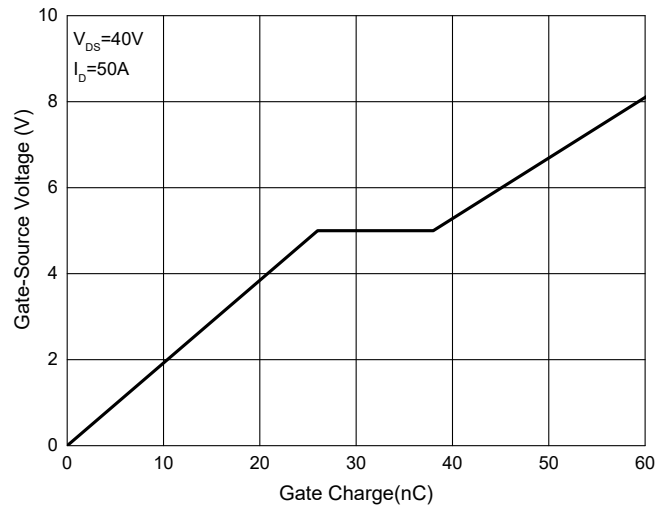


Fig. 5 - Capacitance Characteristics

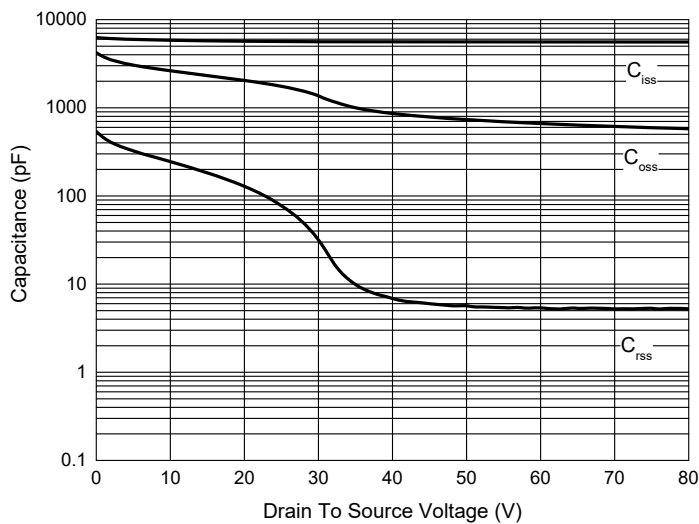
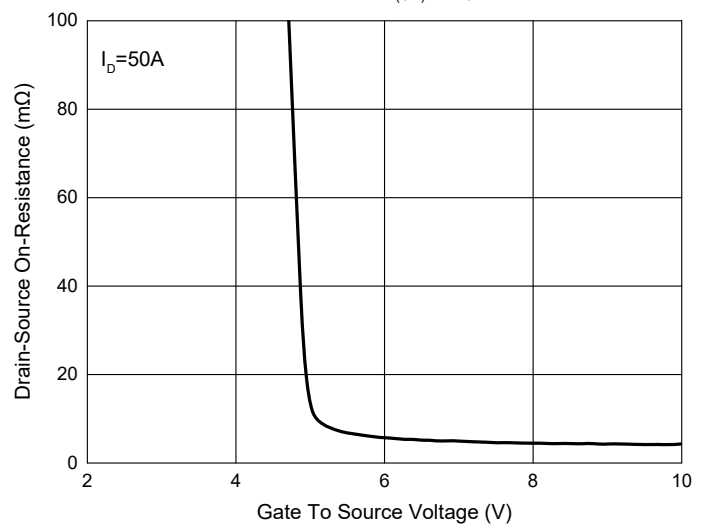


Fig. 6 - $R_{DS(ON)} - V_{GS}$



Curve Characteristics

Fig. 7 - Safe Operation Area

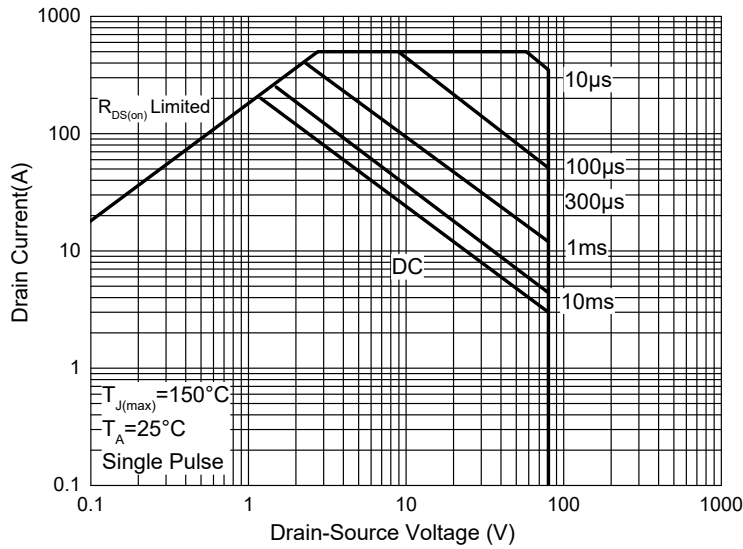
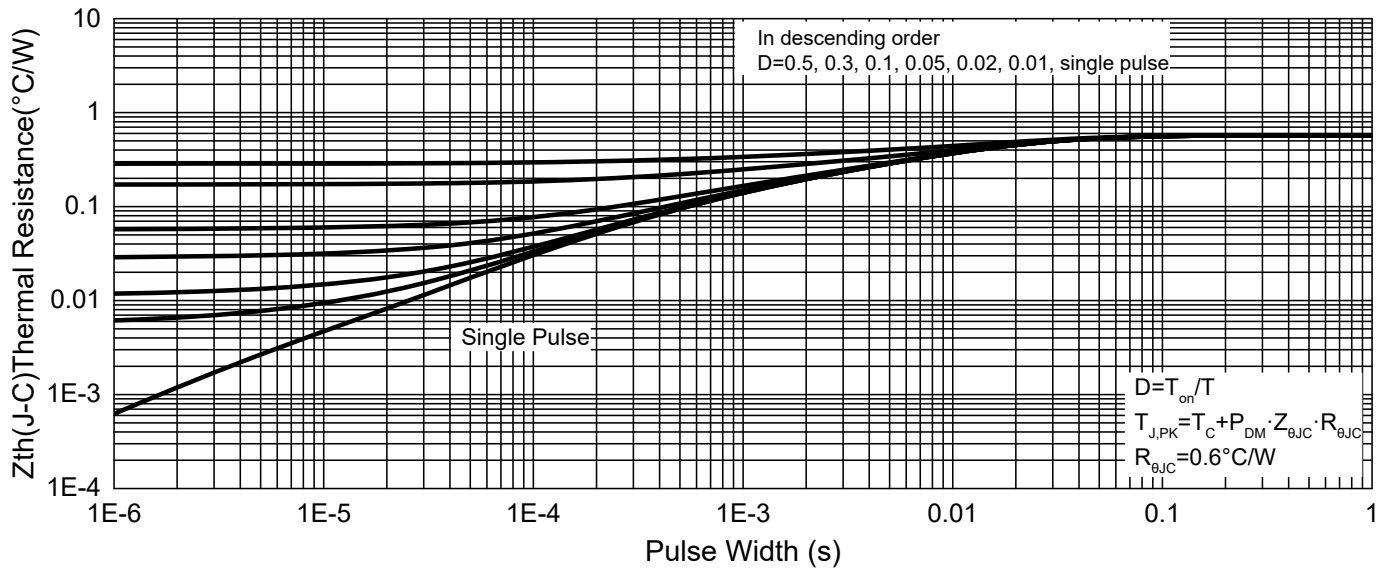


Fig. 8 - Maximum Transient Thermal Impedance



Ordering Information

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

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