Features

- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Halogen Free."Green"Device(Note1)
- 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

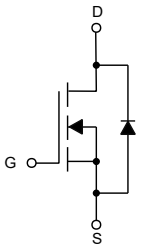
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 15°C/W Junction to Ambient(t≤10S)(Note 2)
- Thermal Resistance: 60°C/W Junction to Ambient(Steady-State)(Note 2)
- Thermal Resistance: 0.48°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Volltage	V_{GS}	±20	V
Continuous Drain Current	I_D	90	A
Pulsed Drain Current (Note 3)	I_{DM}	360	A
Total Power Dissipation(Note 4)	P_D	260	W
Single Pulsed Avalanche Energy(Note 5)	E_{AS}	306	mJ

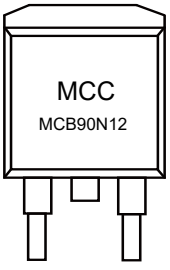
Note:

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 value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. T_J=25°C, V_{DD}=50V, V_{GS}=10V, R_G=25Ω, L=0.5mH.

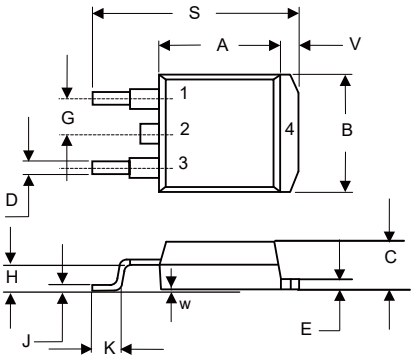
Internal Structure and Marking Code



1. Gate
2,4. Drain
3. Source



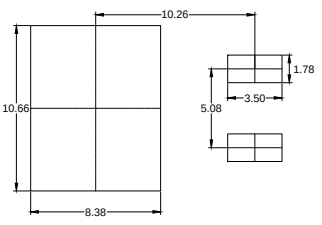
D^2-PAK



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	0.10		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

Unit:mm



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	120			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2	3.2	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		6.2	7.2	mΩ
Gate Resistance	R_G	f=1MHz, Open drain		0.9		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				90	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			1.3	V
Reverse Recovery Time	t_{rr}	I_F=20A, dI_F/dt=100A/μs		84		ns
Reverse Recovery Charge	Q_{rr}			191		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz		4514		pF
Output Capacitance	C_{oss}			1110		
Reverse Transfer Capacitance	C_{rss}			34		
Total Gate Charge	Q_g	V_{DS}=50V,V_{GS}=10V,I_D=20A		65		nC
Gate-Source Charge	Q_{gs}			25.9		
Gate-Drain Charge	Q_{gd}			8.9		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=50V, V_{GEN}=10V, R_G=2.2Ω, I_{DS}=20A		21.6		ns
Turn-On Rise Time	t_r			39.9		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			40.9		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

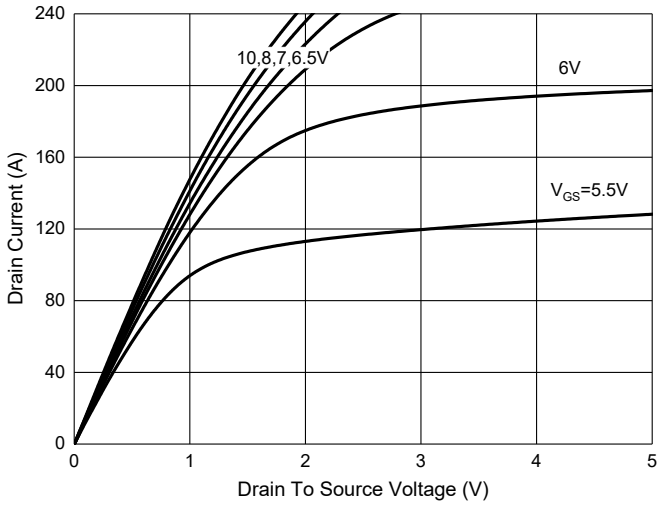


Fig. 2 - Transfer Characteristics

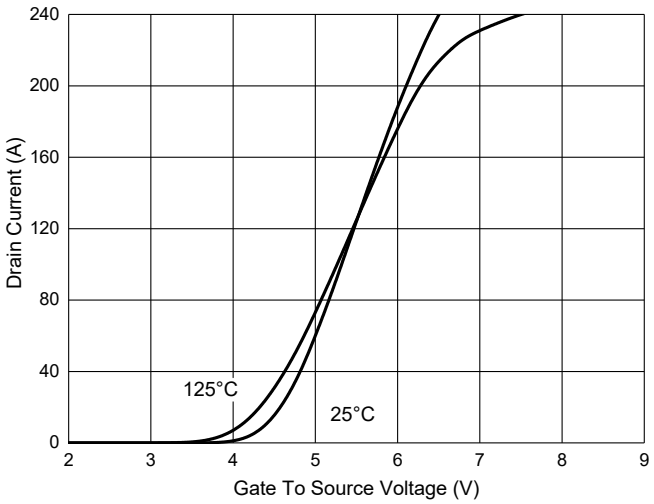


Fig. 3 - $R_{DS(ON)}$—V_{GS}

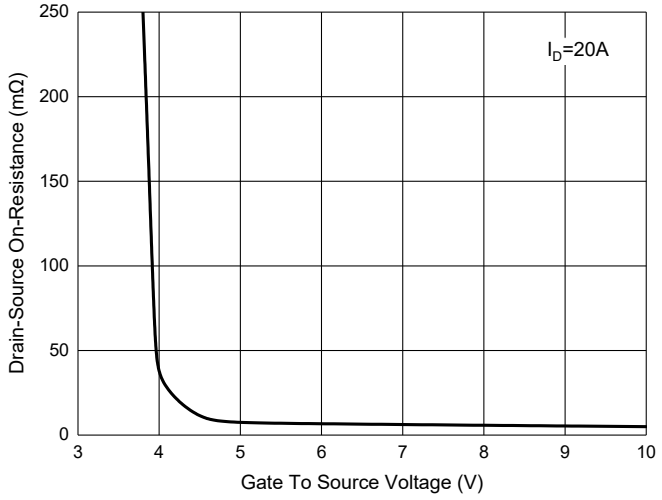


Fig. 4 - Normalized On Resistance Characteristics

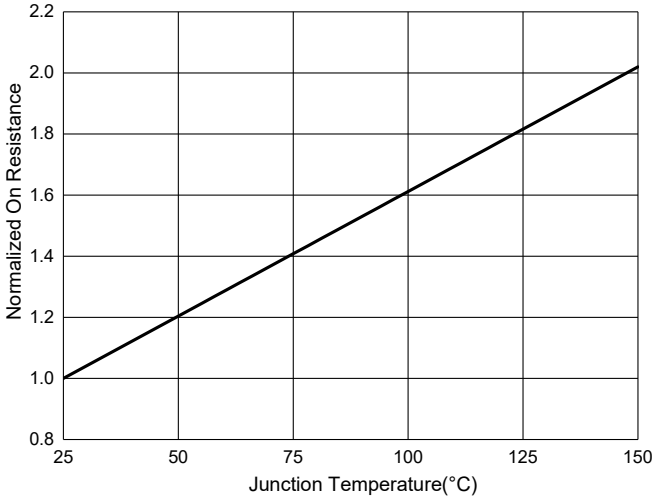


Fig. 5 - Capacitance Characteristics

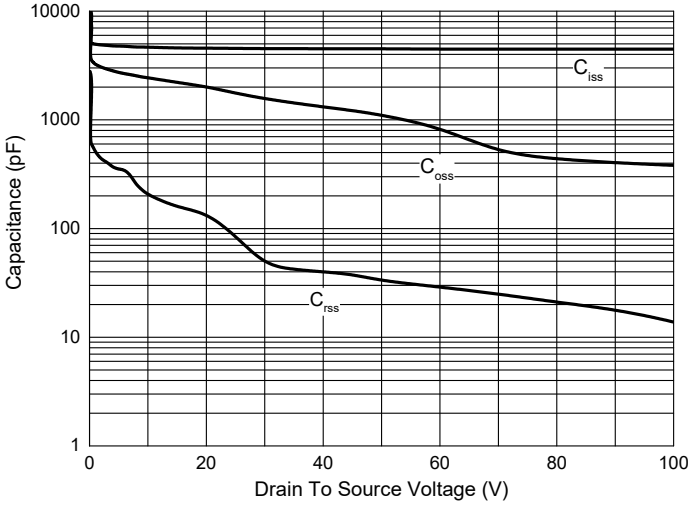
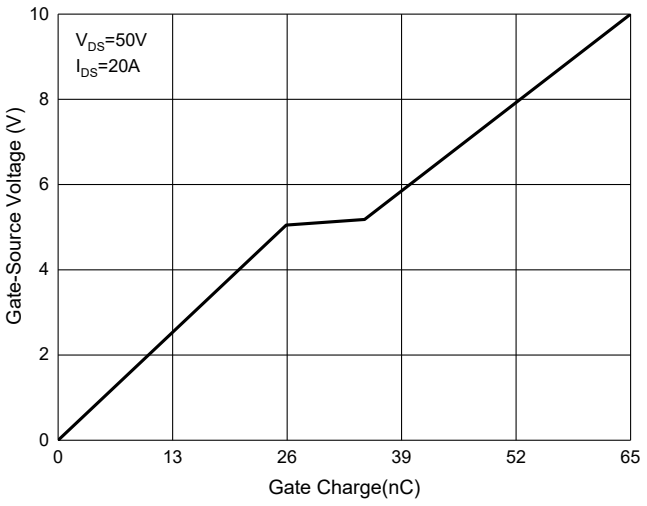
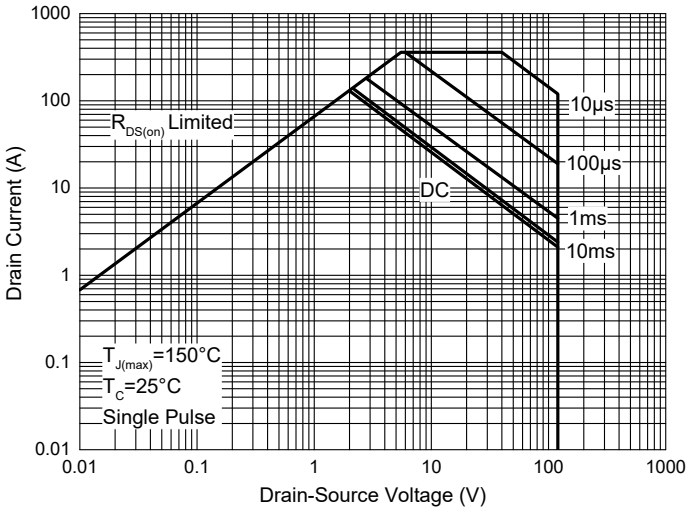


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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