

Features

- Split Gate Trench MOSFET Technology
- 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)

Maximum Ratings

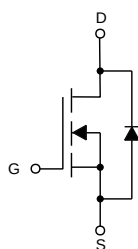
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 40°C/W Junction to Ambient^(Note2)
- Thermal Resistance: 1.8°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	55	A
		35	
Pulsed Drain Current ^(Note3)	I_{DM}	220	A
Total Power Dissipation ^(Note4)	P_D	69	W
Single Pulsed Avalanche Energy ^(Note5)	E_{AS}	144	mJ

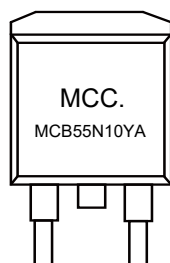
Note:

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 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.
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. $T_J = 25^\circ\text{C}$, $V_{DD} = 50\text{V}$, $V_{GS} = 10\text{V}$, $L = 2\text{mH}$

Internal Structure and Marking Code

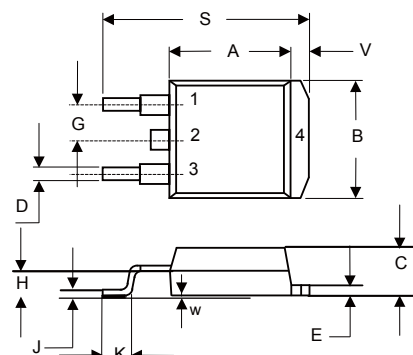


1. Gate
- 2,4. Drain
3. Source



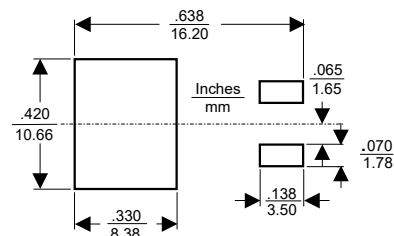
N-Channel MOSFET

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



Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	2.8	4	V
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		16	20	mΩ
		V _{GS} =6V, I _D =20A		20	28	
Gate Resistance	R _G	f=1MHz, Open Drain		1.5		Ω
Body Diode Characteristics						
Diode Forward Current	I _S				55	A
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.2	V
Reverse Recovery Time	t _{rr}	I _F =20A, di/dt=100A/μs		43		ns
Reverse Recovery Charge	Q _{rr}			51		nC
Dynamic Characteristics						
Drain-Source On-Voltage	C _{iss}	V _{DS} =50V,VGS=0V,f=1MHz		1199		pF
Output Capacitance	C _{oss}			415		
Reverse Transfer Capacitance	C _{rss}			8		
Total Gate Charge	Q _g	VDS=50V,VGS=10V,I _D =25A		16		nC
Gate-Source Charge	Q _{gs}			5		
Gate-Drain Charge	Q _{gd}			2		
Turn-On Delay Time	t _{d(on)}	VDS=50V,V _{GS} =10V I _D =25A, RG=2.2Ω		9.5		ns
Rise Time	t _r			3.3		
Turn-Off Delay Time	t _{d(off)}			14.7		
Fall Time	t _f			3.1		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

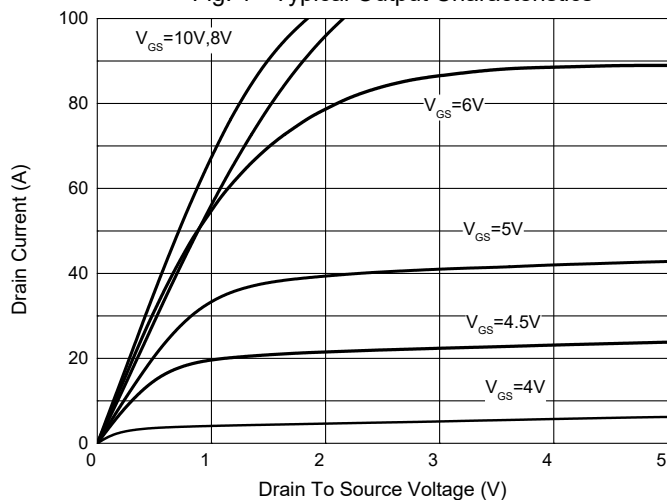


Fig. 2 - Transfer Characteristics

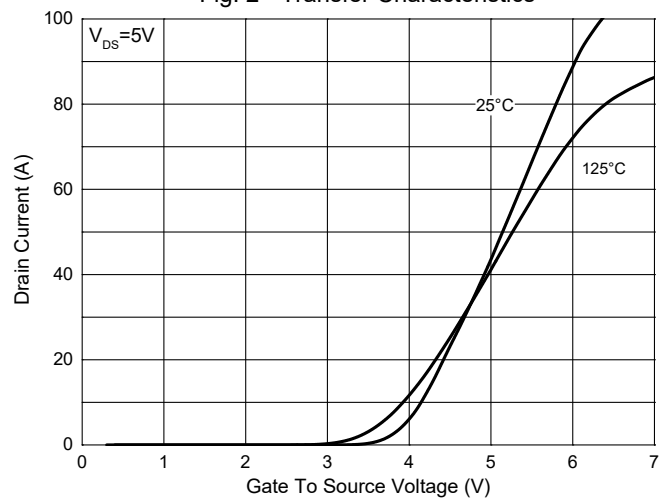


Fig. 3 - $R_{DS(ON)}$ — V_{GS}

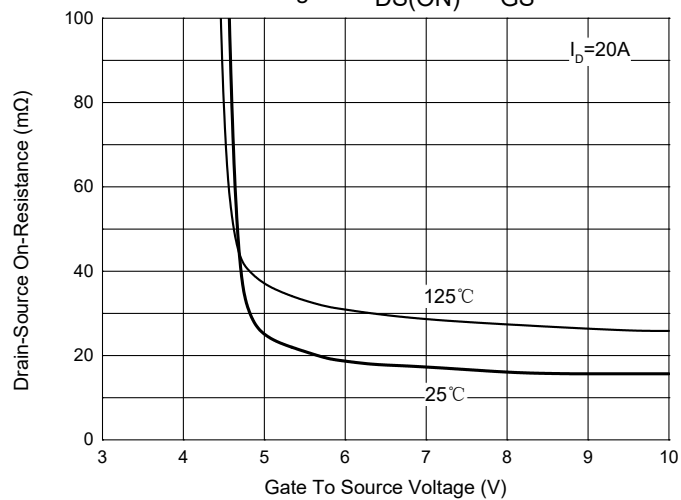


Fig. 4 - $R_{DS(ON)}$ — I_D

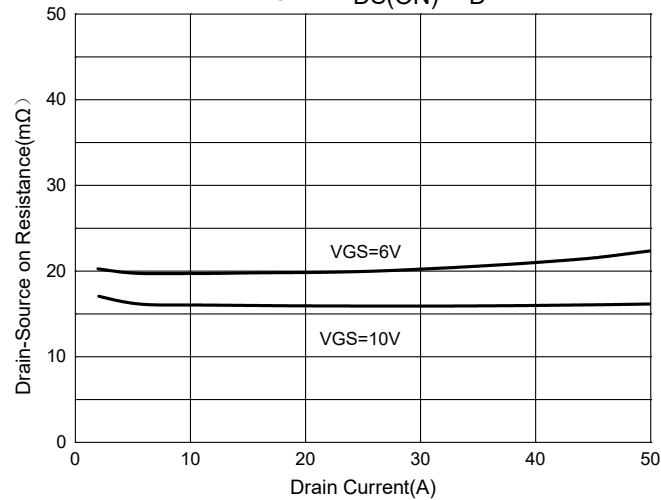


Fig. 5 - Capacitance Characteristics

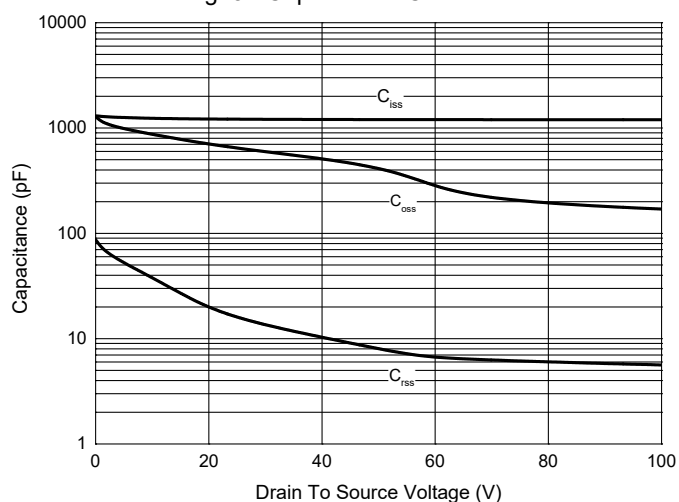
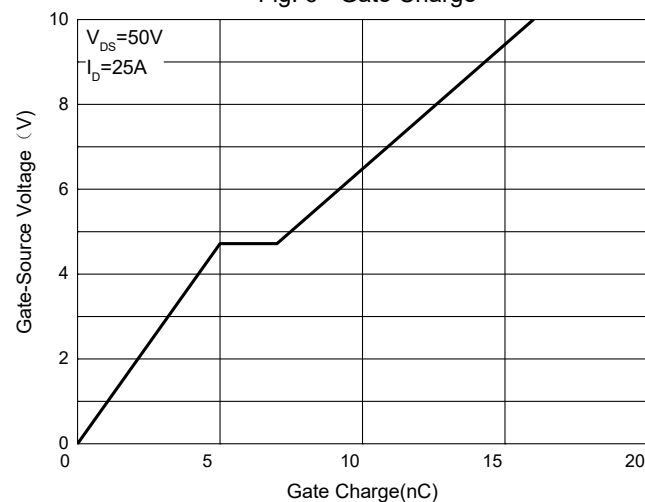


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

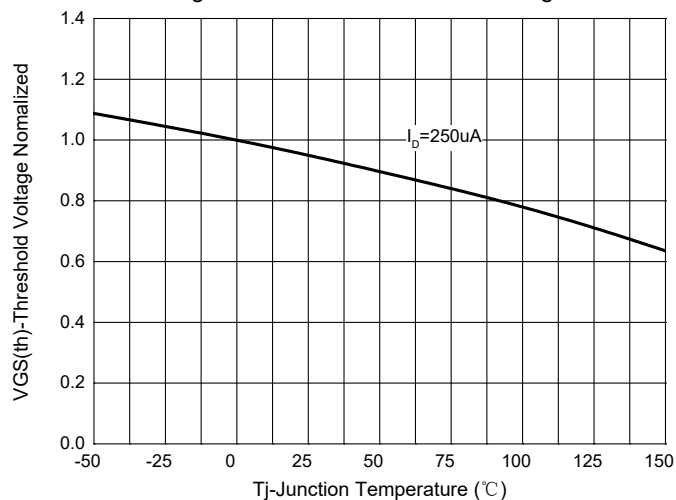


Fig.8-Normalized On Resistance Characteristics

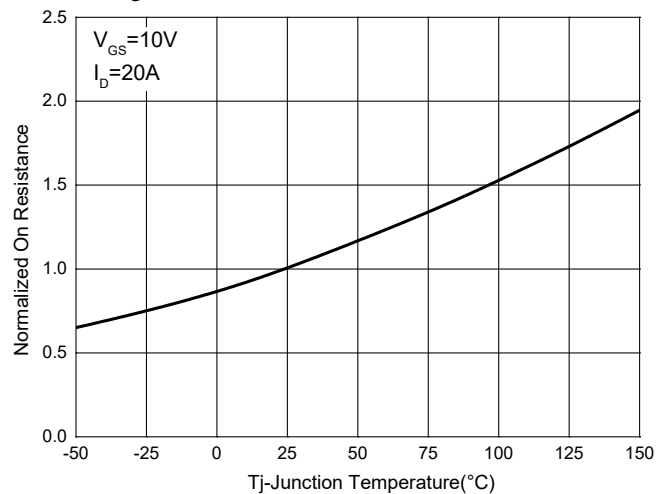


Fig.9 - $I_S - V_{SD}$

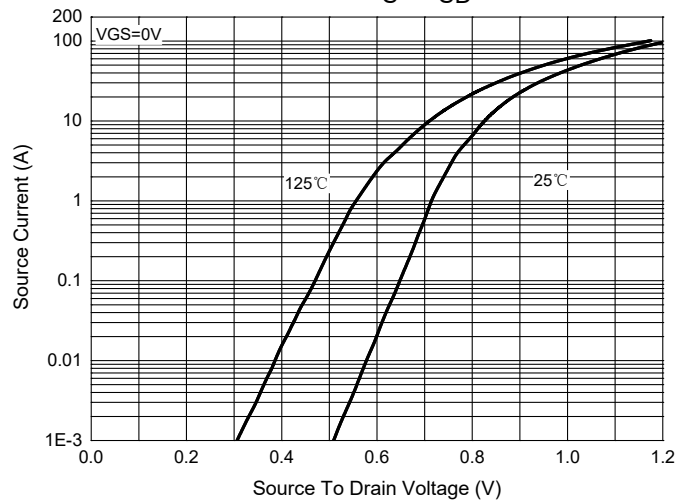


Fig. 10 - Drain Current

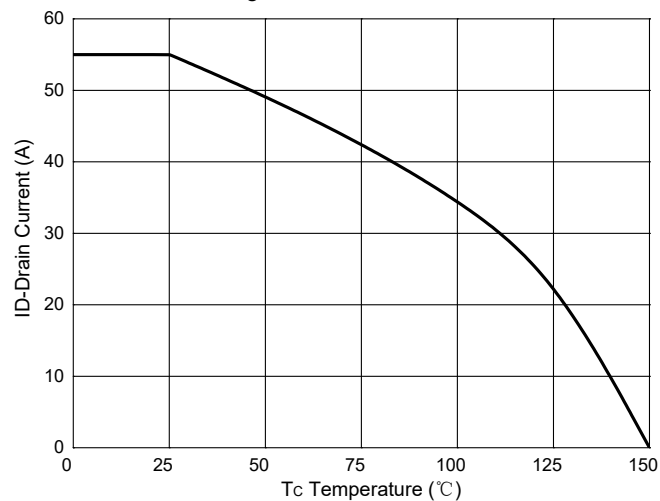
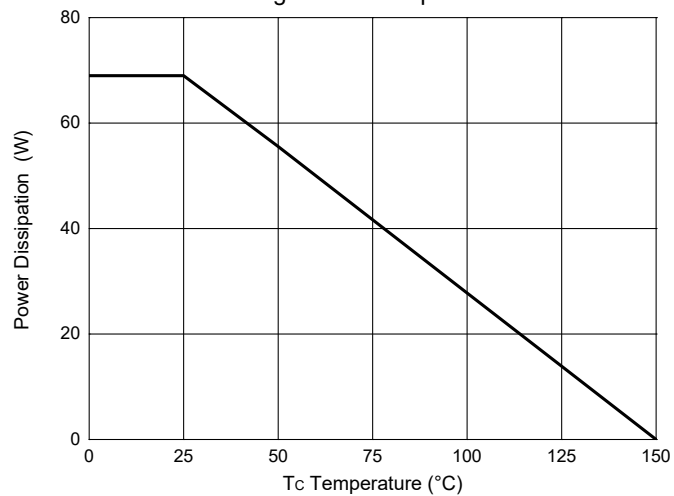


Fig.11-PD Dissipation



Ordering Information

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

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