

Features

- Extremely low Switching Loss
- Fast Switching and Soft Recovery
- Fully Characterized Avalanche Voltage and Current
- Excellent Package for Good Heat Dissipation
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Moisture Sensitivity Level 1

Maximum Ratings

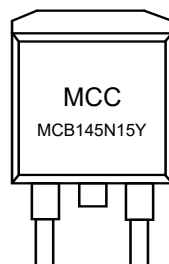
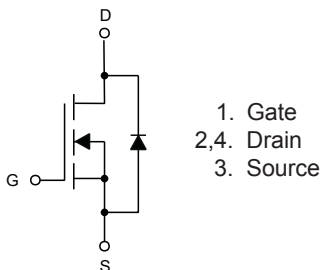
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.35°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ^(Note 1)	I_D	$T_C=25^\circ\text{C}$	145
		$T_C=100^\circ\text{C}$	92
Pulsed Drain Current ^(Note 2)	I_{DM}	580	A
Single Pulse Avalanche Energy ^(Note 3)	E_{AS}	605	mJ
Total Power Dissipation	P_D	$T_C=25^\circ\text{C}$	357
		$T_C=100^\circ\text{C}$	143

Note:

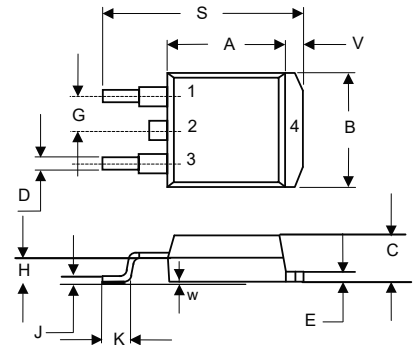
- 1.The Maximum Current Rating is Package Limited.
- 2.Single Pulse Width Limited by Junction Temperature $T_{J(MAX)}=150^\circ\text{C}$.
- 3.VDD=50V, RG=25Ω, L=5mH

Internal Structure and Marking Code



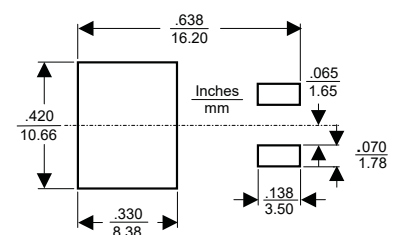
N-CHANNEL MOSFET

D²-PAK(TO-263)



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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	150			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage ^(Note4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.50		4.5	V
Drain-Source On-Resistance ^(Note4)	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$			8.0	m Ω
Diode Forward Voltage ^(Note4)	V_{SD}	$V_{GS}=0V, I_S=20A$			1.2	V
Maximum Body-Diode Continuous Current	I_S				145	A
Gate Resistance	R_G	f=1MHz, Open Drain		0.72		Ω
Dynamic Characteristics^(Note5)						
Input Capacitance	C_{iss}	$V_{DS}=75V, V_{GS}=0V, f=1MHz$		7950		pF
Output Capacitance	C_{oss}			1600		
Reverse Transfer Capacitance	C_{rss}			40		
Switching Characteristics^(Note5)						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=75V, I_D=20A$		108		nC
Gate-Source Charge	Q_{gs}			45		
Gate-Drain Charge	Q_{gd}			10.2		
Reverse Recovery Charge	Q_{rr}	$I_F=20A, di/dt=100A/\mu s$		640		ns
Reverse Recovery Time	t_{rr}			131		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=75V, I_{DS}=20A, R_G=3\Omega,$		27.3		ns
Turn-On Rise Time	t_r			29.2		
Turn-Off Delay Time	$t_{d(off)}$			47.1		
Turn-Off Fall Time	t_f			37		

Notes:

 4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycles $\leq 2\%$.

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

Curve Characteristics

Fig. 1 - Output Characteristics

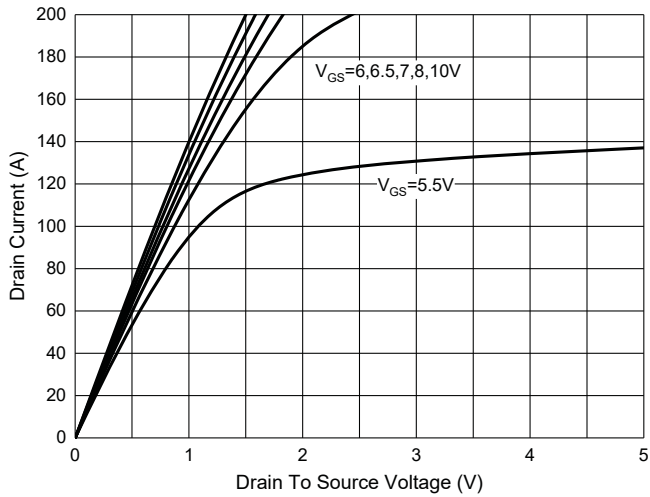


Fig. 2 - Transfer Characteristics

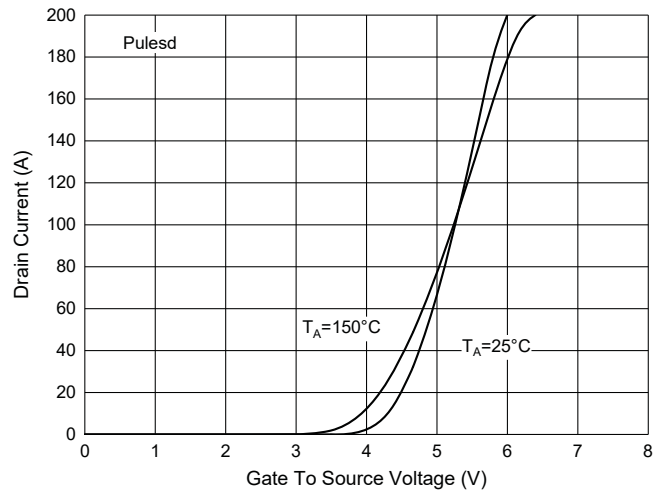


Fig. 3 - Normalized On Resistance Characteristics

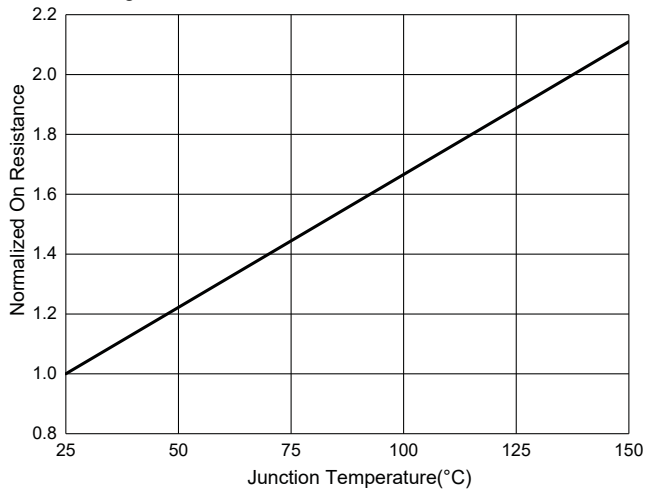


Fig. 4 - $R_{DS(ON)} - V_{GS}$

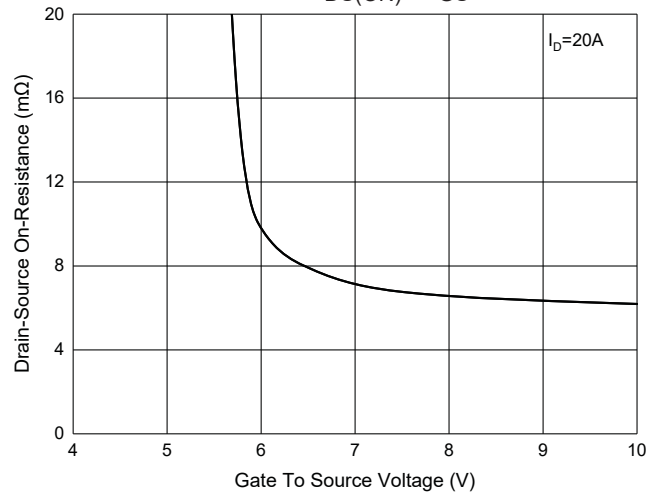


Fig. 5 - Gate Charge

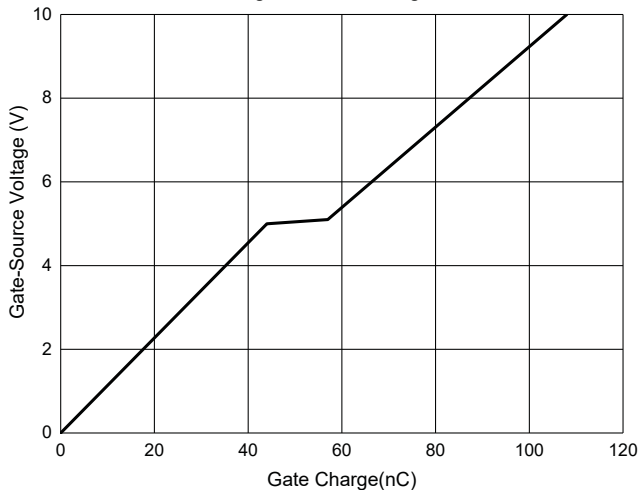
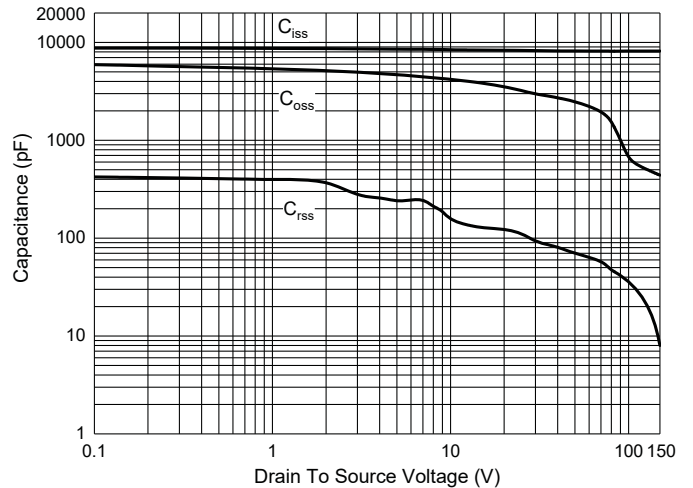


Fig. 6 - Capacitance Characteristics



Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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