

Features

- Low $R_{DS(on)}$ & FOM
- Extremely Low Switching Loss
- Excellent Stability and Uniformity
- Fast Switching and Soft Recovery
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Halogen Free. "Green" Device
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1

Maximum Ratings

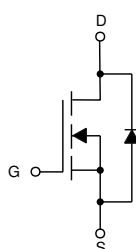
- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 60°C/W Junction to Ambient⁽¹⁾
- Thermal Resistance: 0.5°C/W Junction to Case

Parameter	Symbol	Value
Drain-Source Voltage	V_{DS}	100V
Gate-Source Voltage	V_{GS}	$\pm 20\text{V}$
Continuous Drain Current ⁽²⁾ , $T_C=25^{\circ}\text{C}$	I_D	130A
Pulsed Drain Current ⁽³⁾ , $T_C=25^{\circ}\text{C}$	$I_{D,pluse}$	440A
Power Dissipation ⁽⁴⁾ , $T_C=25^{\circ}\text{C}$	P_D	260W
Single Pulsed Avalanche Energy ⁽⁵⁾	E_{AS}	900mJ

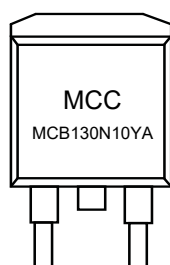
Note:

1. The Value of $R_{\theta JA}$ is Measured with the Device Mounted on 1 in² FR-4 Board with 2oz. Copper, In a Still Air Environment with $T_A=25^{\circ}\text{C}$.
2. Calculated Continuous Current Based on Maximum Allowable Junction Temperature.
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. $V_{DD}=50\text{V}$, $R_G=25\Omega$, $L=2\text{mH}$, Starting $T_J=25^{\circ}\text{C}$.

Internal Structure and Marking Code

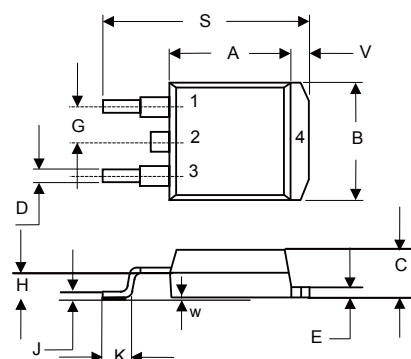


1. Gate
- 2,4. Drain
3. Source



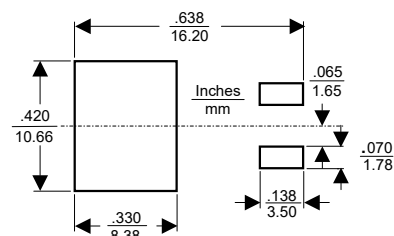
N-Channel MOSFET

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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	2.8	4	V
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		3.8	4.6	m Ω
Gate Resistance	R_G	f=1MHz, Open Drain		0.9		Ω
Dynamic Characteristics						
Drain-Source On-Voltage	C_{ISS}	$V_{GS}=0V, V_{DS}=50V, f=1MHz$		4600		pF
Output Capacitance	C_{OSS}			1250		pF
Reverse Transfer Capacitance	C_{RSS}			43		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=50V, R_G=2.2\Omega, I_D=20A$		17.6		ns
Rise Time	t_r			30.2		ns
Turn-Off Delay Time	$t_{d(off)}$			33.5		ns
Fall Time	t_f			39.5		ns
Gate Charge Characteristics						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=50V, I_D=20A$		66		nC
Gate-Source Charge	Q_{gs}			23		nC
Gate-Drain Charge	Q_{gd}			6.6		nC
Body Diode Characteristics						
Diode Forward Current	I_S	$V_{GS}<V_{th}$			130	A
Pulsed Source Current	I_{SP}				440	A
Diode Forward Voltage	V_{SD}	$I_S=20A, V_{GS}=0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_S=20A, di/dt=100A/\mu s$		63		ns
Reverse Recovery Charge	Q_{rr}				93	

Curve Characteristics

Fig. 1 - Typical Output Characteristics

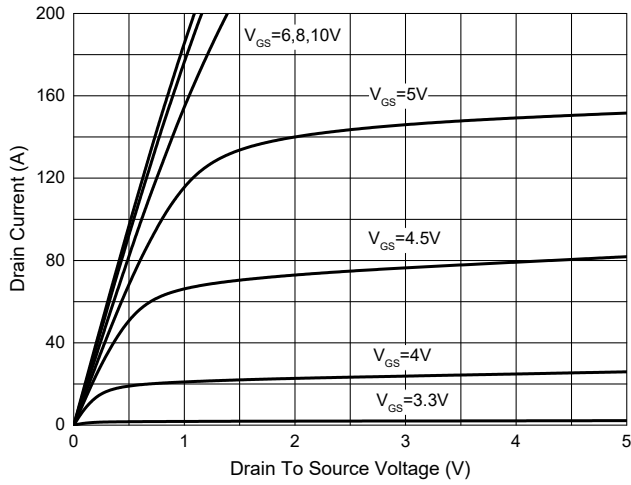


Fig. 2 - Transfer Characteristics

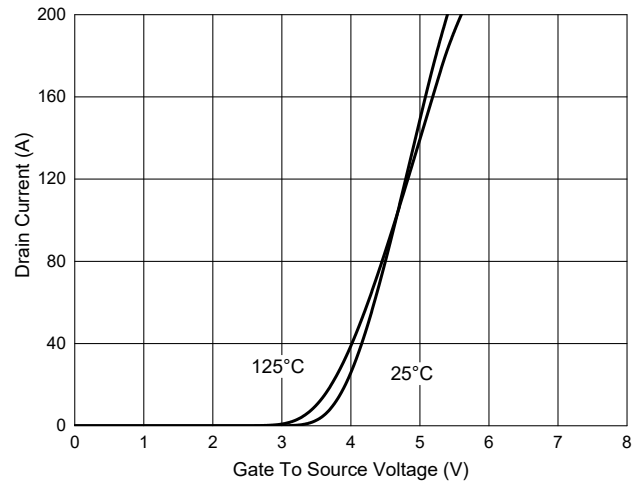


Fig. 3 - $R_{DS(ON)} - V_{GS}$

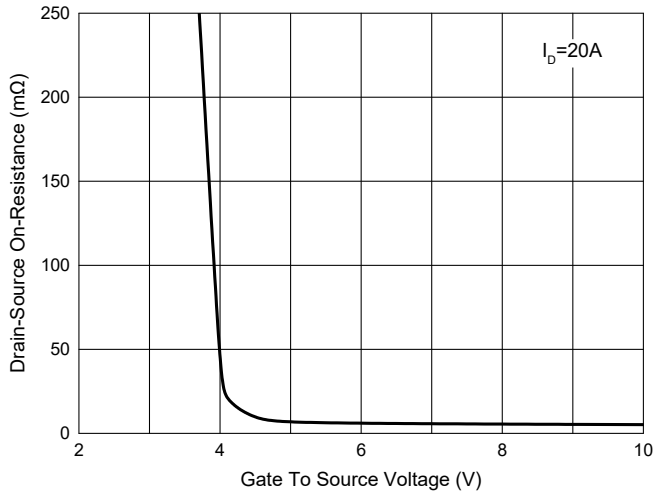


Fig. 4 - Total Gate Charge Characteristics

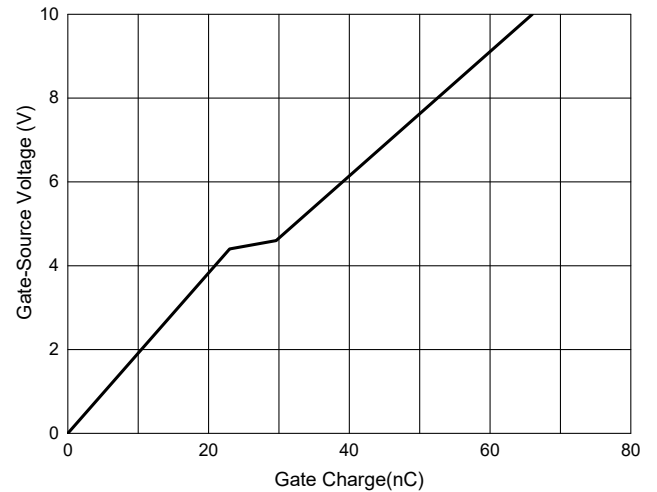


Fig. 5 - Capacitance Characteristics

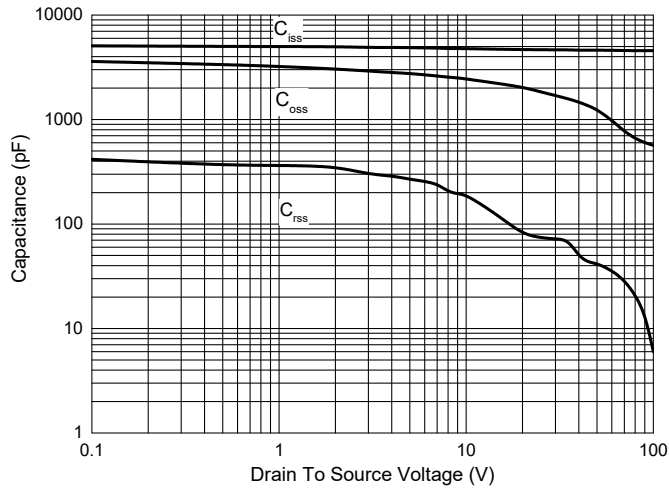
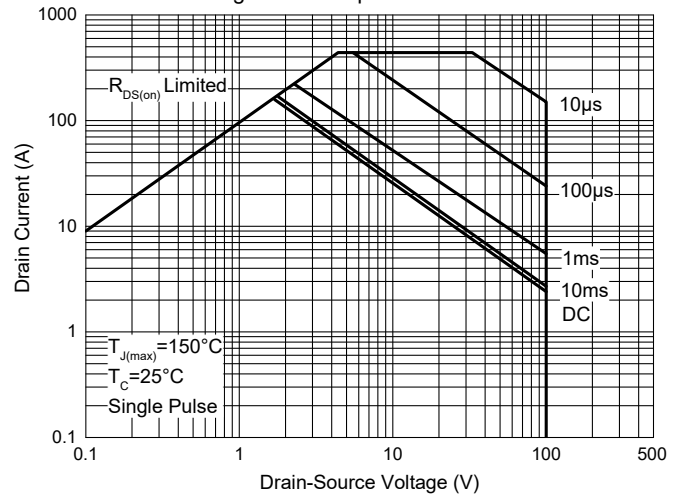


Fig. 6 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800pcs/Reel
Part Number-BP	Tube: 5Kpcs/Ctn

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