

Features

- AEC-Q101 Qualified
- Split Gate Trench MOSFET Technology
- Low Thermal Resistance
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

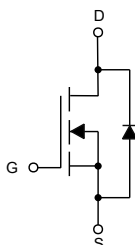
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 50°C/W Junction to Ambient^(Note 2)
- Thermal Resistance: 0.83°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	150	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	T _C =25°C	70
		T _C =100°C	49
Pulsed Drain Current ^(Note3)	I _{DM}	280	A
Total Power Dissipation ^(Note4)	P _D	180	W
Single Pulsed Avalanche Energy ^(Note5)	E _{AS}	200	mJ

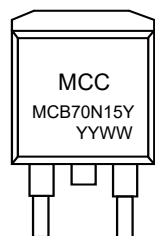
Note:

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_{θJA} is measured with the device mounted on 1in² 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=1mH.

Internal Structure and Marking Code



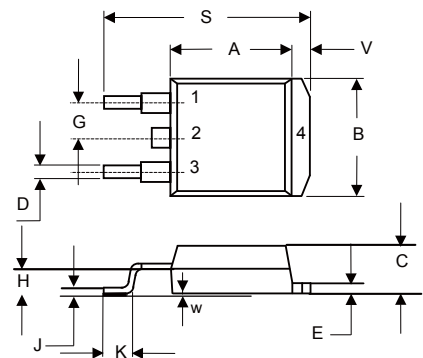
1. Gate
- 2,4. Drain
3. Source



4 codes in total
YY is the year
WW is the week

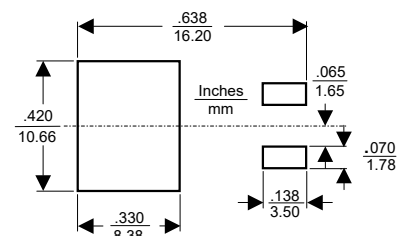
**N-CHANNEL
MOSFET**

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	0.10		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



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}	$V_{DS}=120V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	2.9	4.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		13	17	m Ω
		$V_{GS}=6V, I_D=10A$		15	23	
Gate Resistance	R_g	f=1MHz, Open Drain		0.9		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				70	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F=20A, di/dt=100A/\mu s$		93		ns
Reverse Recovery Charge	Q_{rr}			214		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=75V, V_{GS}=0V, f=1MHz$		2517		pF
Output Capacitance	C_{oss}			210		
Reverse Transfer Capacitance	C_{rss}			8		
Total Gate Charge	Q_g	$V_{DS}=75V, V_{GS}=10V, I_D=20A$		40		nC
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			11		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=75V, V_{GS}=10V, R_G=4.5\Omega, I_{DS}=20A$		15		ns
Turn-On Rise Time	t_r			14		
Turn-Off Delay Time	$t_{d(off)}$			29		
Turn-Off Fall Time	t_f			13		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

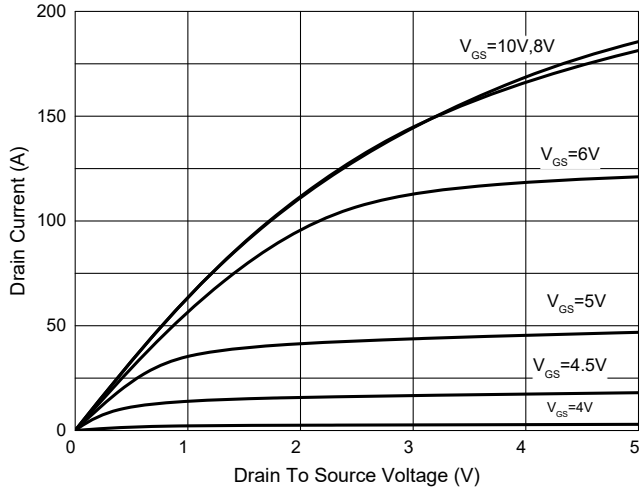


Fig. 2 - Transfer Characteristics

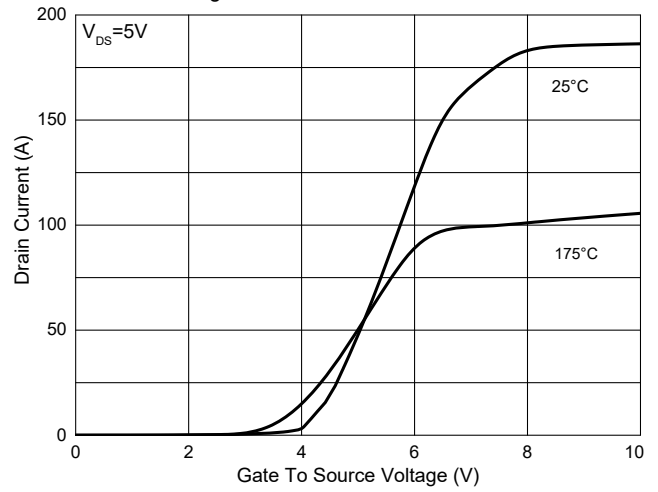


Fig. 3 - $R_{DS(ON)} - V_{GS}$

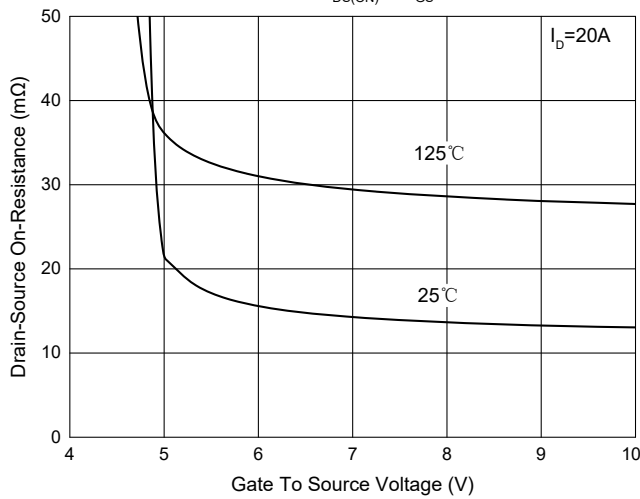


Fig. 4 - $R_{DS(ON)} - I_D$

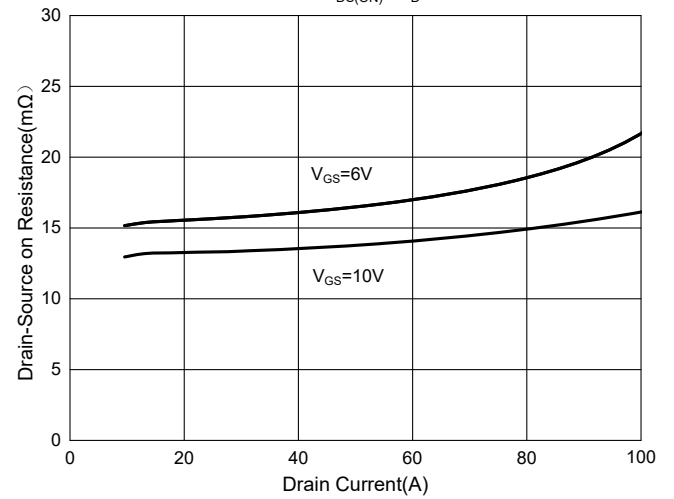


Fig. 5 - Capacitance Characteristics

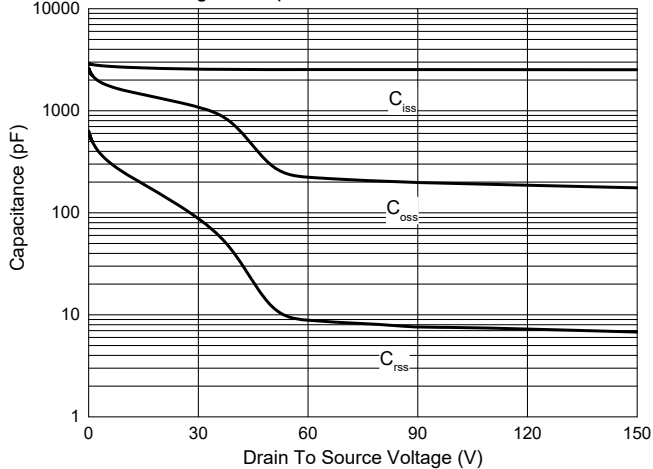
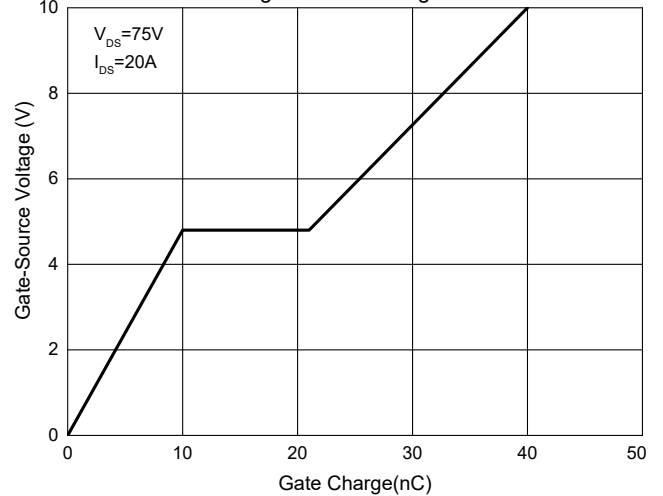


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

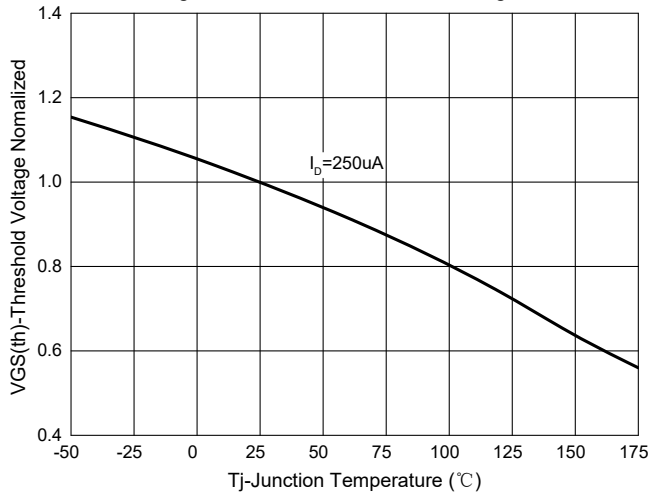


Fig.8-Normalized On Resistance Characteristics

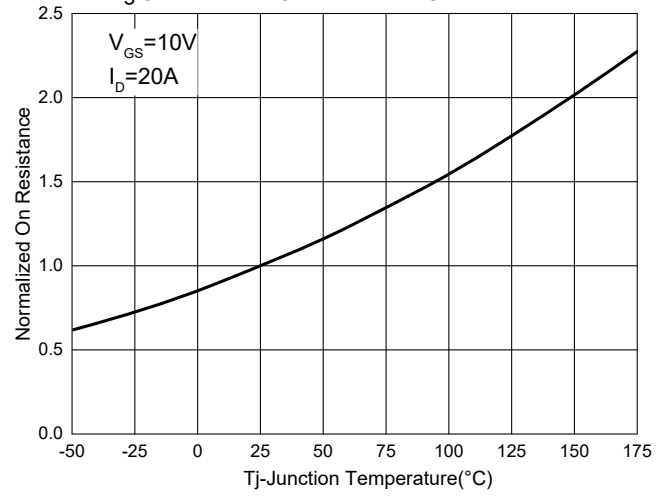


Fig. 9 - $I_s - V_{SD}$

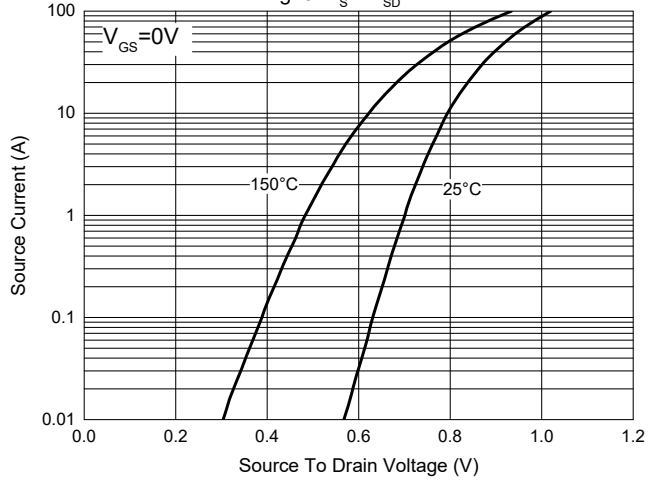


Fig. 10 - Drain Current

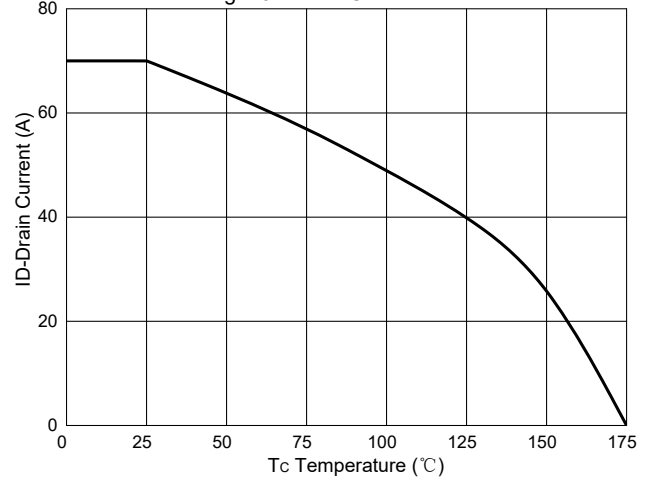
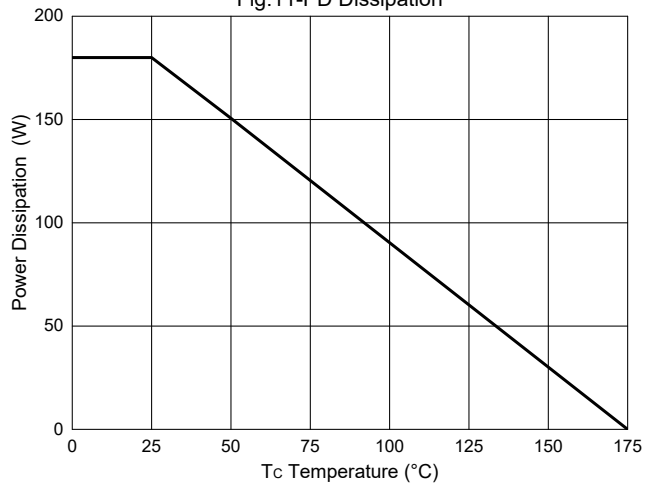
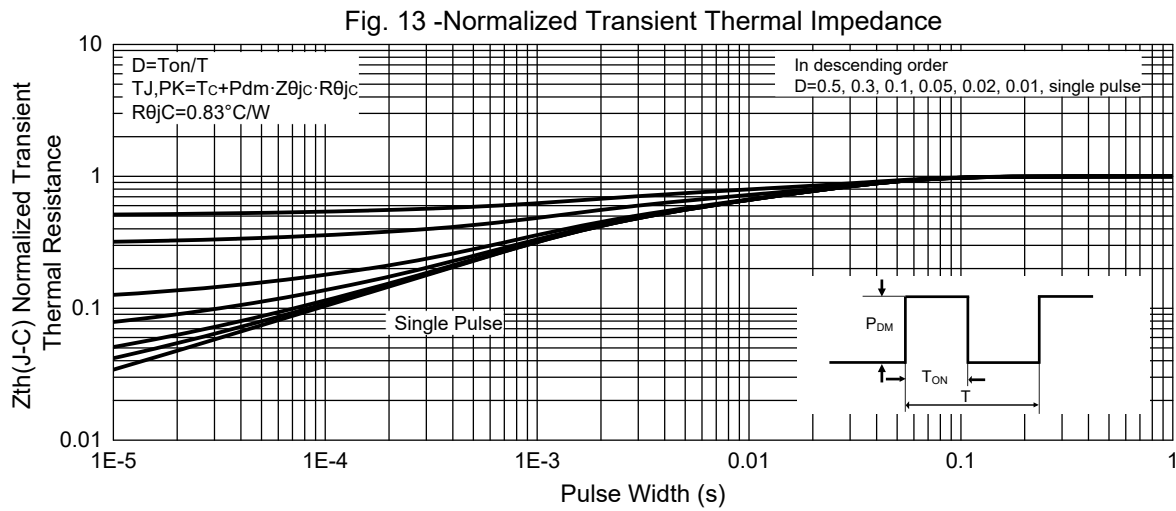
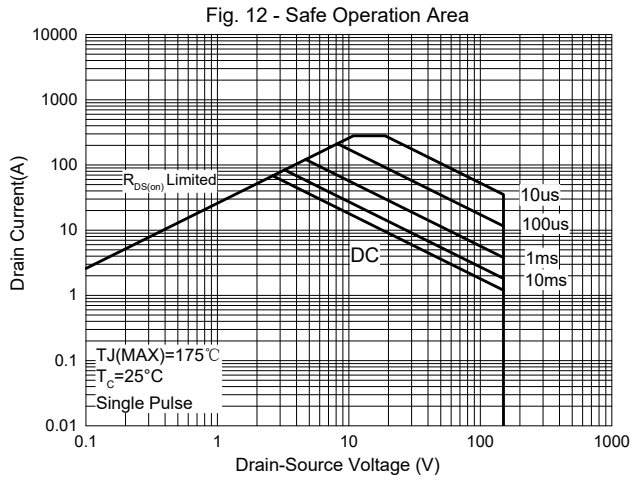


Fig.11-PD Dissipation



Curve Characteristics



Ordering Information

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

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