

Features

- Split Gate Trench MOSFET Technology
- Excellent Package For Heat Dissipation
- High Density Cell Design For Low $R_{DS(ON)}$
- Halogen Free. "Green" Device (Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

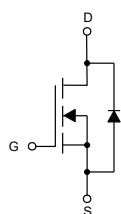
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 42°C/W Junction to Ambient (Note3)
- Thermal Resistance: 0.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	94	A
		59	
Pulsed Drain Current (Note4)	I_{DM}	376	A
Total Power Dissipation (Note5)	P_D	250	W
Single Pulse Avalanche Energy (Note6)	E_{AS}	625	mJ

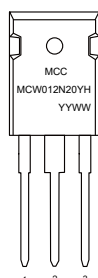
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7(a)-I.
3. 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 $T_A = 25^\circ\text{C}$.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. P_D is based on max. junction temperature, using junction-case thermal resistance.
6. $T_J = 25^\circ\text{C}$, $V_{DD} = 100\text{V}$, $V_{GS} = 10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$.

Internal Structure and Marking Code



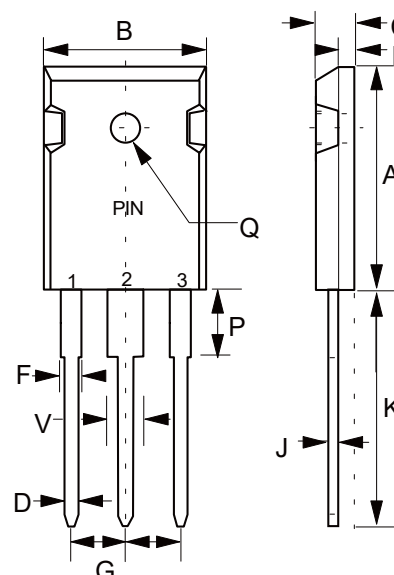
1. Gate
2. Drain
3. Source



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

N-CHANNEL MOSFET

TO-247



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.787	0.866	20.00	22.00	
B	0.598	0.638	15.20	16.20	
C	0.185	0.208	4.70	5.30	
D	0.035	0.059	0.90	1.50	
E	0.059	0.094	1.50	2.40	
F	0.067	0.091	1.70	2.30	
J	0.019	0.031	0.48	0.80	
K	0.748	0.833	19.00	21.15	
P	0.122	0.189	3.10	4.80	
Q	0.118	0.150	3.00	3.80	Φ
V	0.106	0.134	2.70	3.40	
G	0.197	0.224	5.00	5.70	

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	200			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =200V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.2	3	3.8	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =50A		9.6	12	mΩ
Gate Resistance	R _g	f=1 MHz, Open Drain		0.8		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				94	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =50A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =50A, di/dt=100A/μs		135		ns
Reverse Recovery Charge	Q _{rr}			576		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =100V,V _{GS} =0V,f=1MHz		4061		pF
Output Capacitance	C _{oss}			444		
Reverse Transfer Capacitance	C _{rss}			11		
Total Gate Charge	Q _g	V _{DS} =100V,V _{GS} =10V,I _D =50A		52		nC
Gate-Source Charge	Q _{gs}			18.7		
Gate-Drain Charge	Q _{gd}			6.2		
Turn-On Delay Time	t _{d(on)}	V _{DD} =100V, V _{GS} =10V, R _G =3Ω, I _D =50A		19.2		ns
Turn-On Rise Time	t _r			51.8		
Turn-Off Delay Time	t _{d(off)}			33.3		
Turn-Off Fall Time	t _f			9.4		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

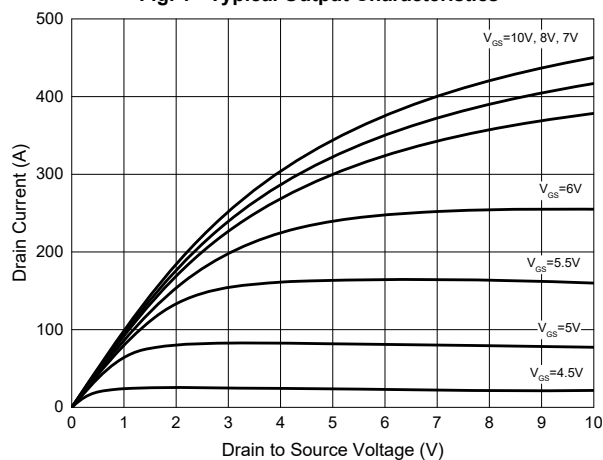


Fig. 2 - Transfer Characteristics

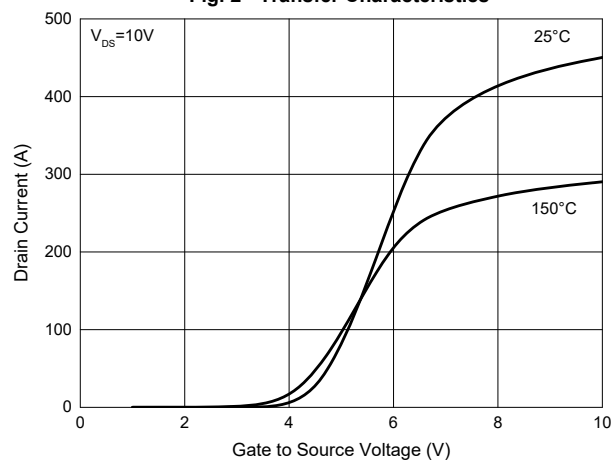


Fig. 3 - $R_{DS(ON)}$ - V_{GS}

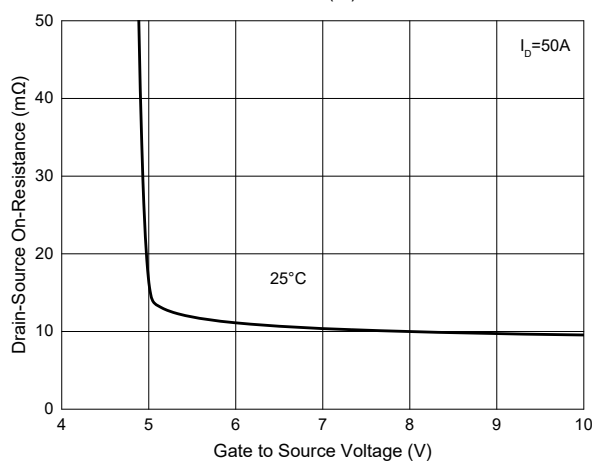


Fig. 4 - $R_{DS(ON)}$ - I_D

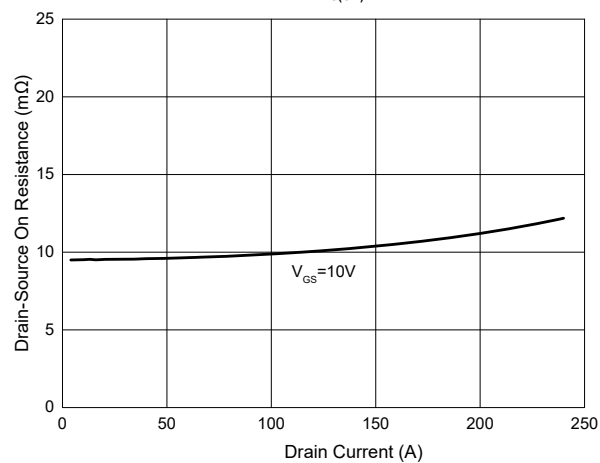


Fig. 5 - Capacitance Characteristics

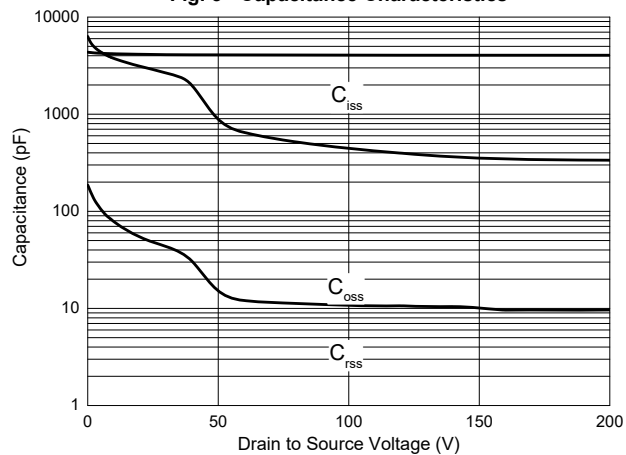
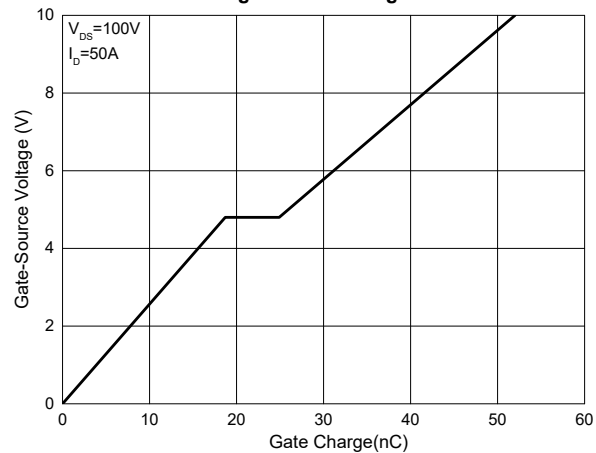


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

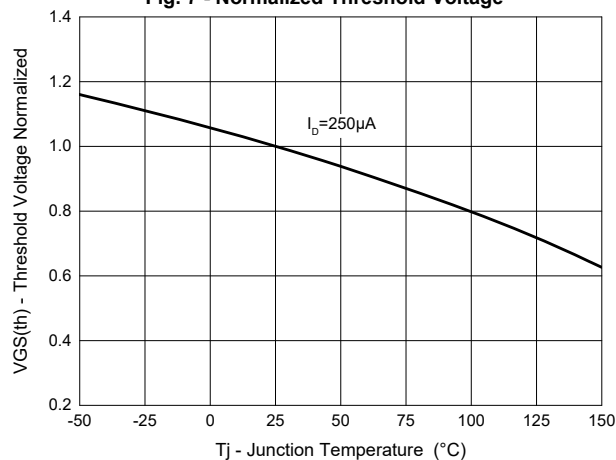


Fig. 8 - Normalized On Resistance Characteristics

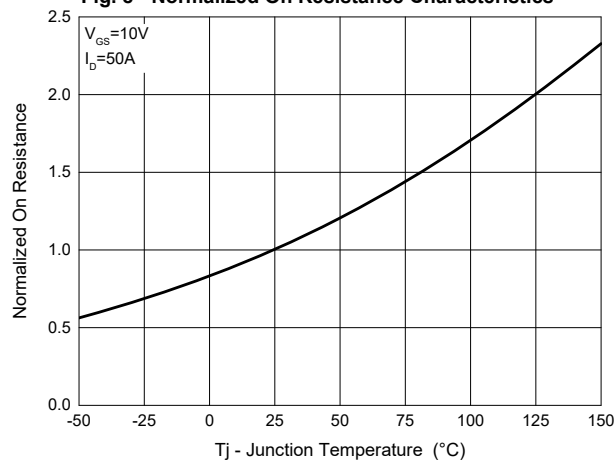


Fig. 9 - I_S - V_{SD}

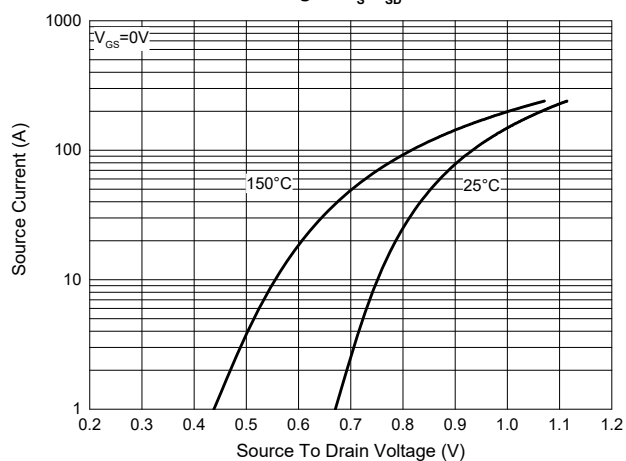


Fig. 10 - Drain Current

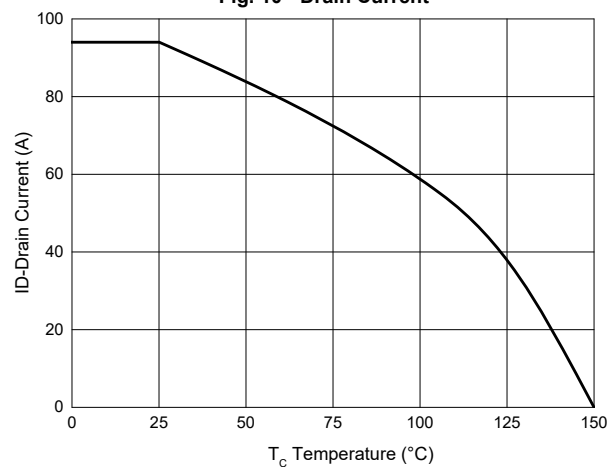
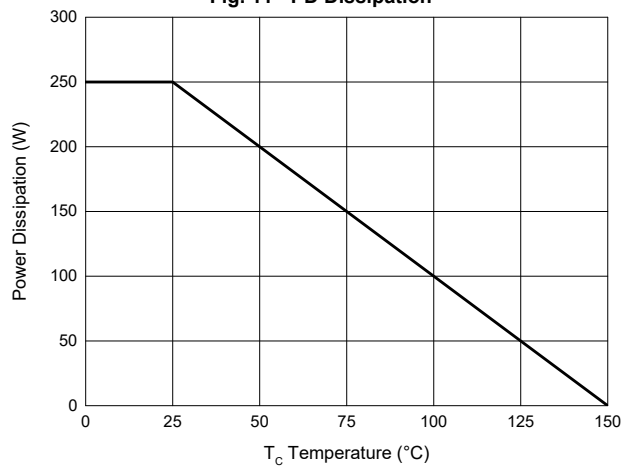


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

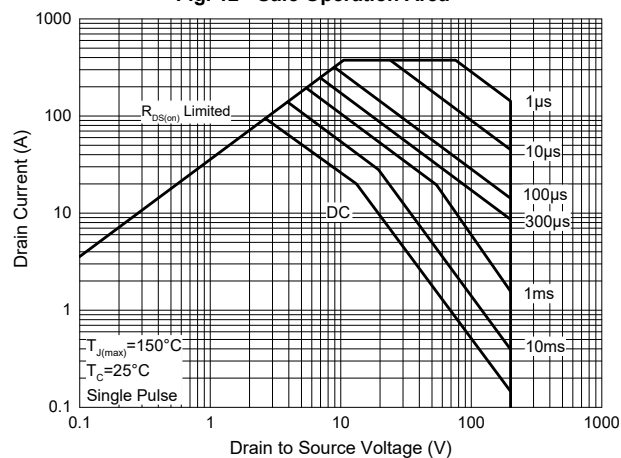
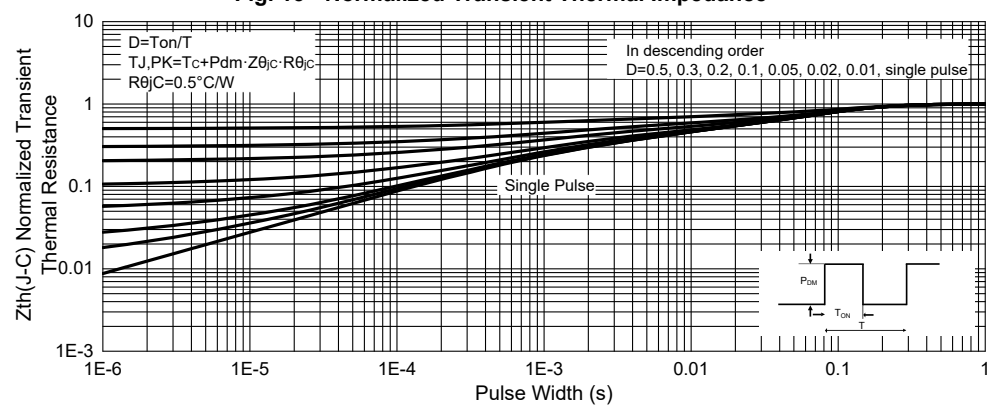


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-BP	Tube:30pcs/Tube, 360pcs/Box,1.8K/Ctn;

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