Description

This 60V 120A N-Channel MOSFET in a TO-220 Plastic Package.

Applications

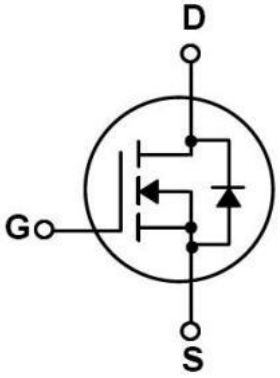
These devices are well suited for high efficiency switching DC/DC converters,Synchronous rectification and UPS inverter.

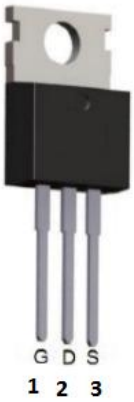
Features

Low gate charge minimize switching loss and fast recovery body diode

V_{DSS}	$R_{DS(on)}$ (Typ)	I_D
60V	4.6mΩ	120A

Equivalent Circuit & Pinning





Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain Current	I_D(Tc=25℃)	120	A
	I_D(Tc=100℃)	88	A
Pulsed Drain Current	I_{DM}	480	A
Gate-Source Voltage	V_{GSS}	±20	V
Avalanche Current	I_{AS}	46.5	A
Avalanche energy L=0.5mH	E_{AS}	860	mJ
Total Power Dissipation	P_D(Tc=25℃)	195	W
Junction and Storage Temperature Range	T_J,T_{STG}	-55 to 150	℃
Thermal Resistance-Junction to Case	$R_{\theta JC}$	0.77	℃/W
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	65	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	BV_{DSS}	V_{GS}=0V I_D=250μA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	2	3.2	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=60A		4.6	6	mΩ
Forward On Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1MHz		1560		pF
Output Capacitance	C_{oss}			146		
Reverse Transfer Capacitance	C_{rss}			18		
Total Gate Charge	Q_g	VDD=30V ID=60A VGS=0V-10V		110		nC
Gate-Source charge	Q_{gs}			13		
Gate-Drain charge	Q_{gd}			52		
Gate Series Resistan	R_g	f=1.0MHz		1.0		Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V I_D=60A V_{GS}=10V R_G=2.5Ω		23		ns
Turn-On Rise Time	t_r			38		
Turn-Off Delay Time	$t_{d(off)}$			54		
Turn-Off Fall Time	t_f			26		

Electrical Characteristic Curve

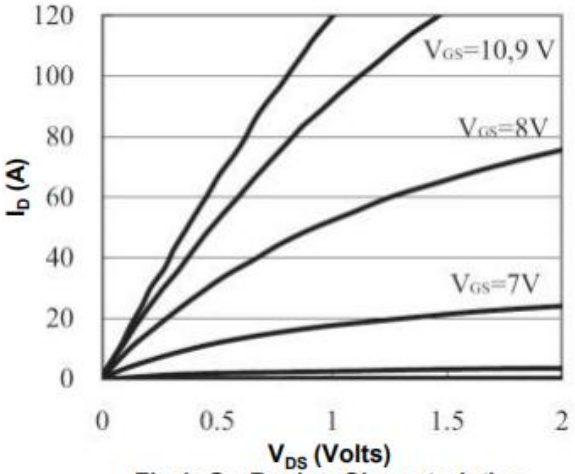


Fig 1: On-Region Characteristics

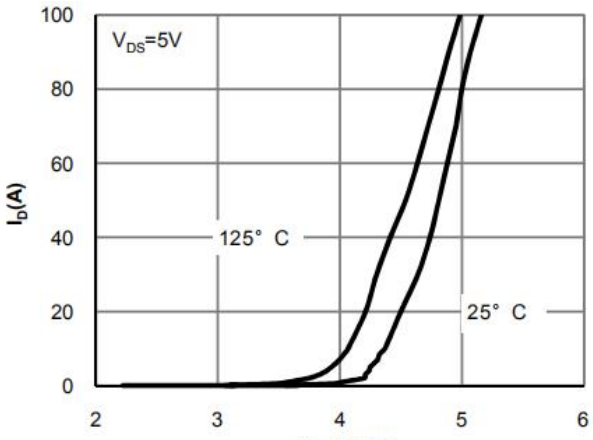


Figure 2: Transfer Characteristics

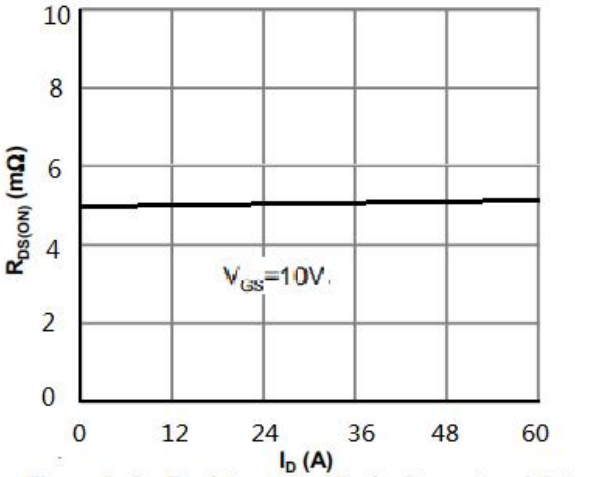


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

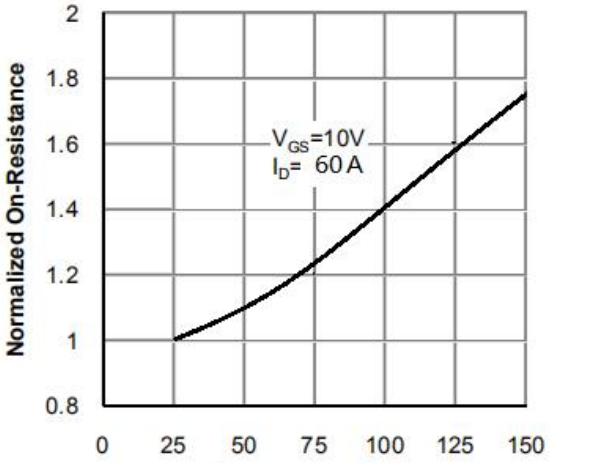


Figure 4: On-Resistance vs. Junction Temperature

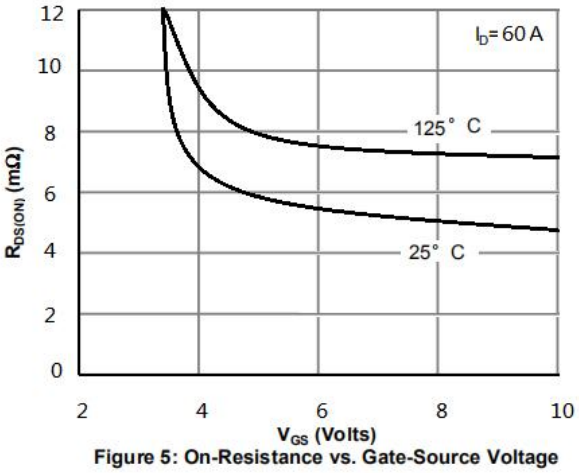


Figure 5: On-Resistance vs. Gate-Source Voltage

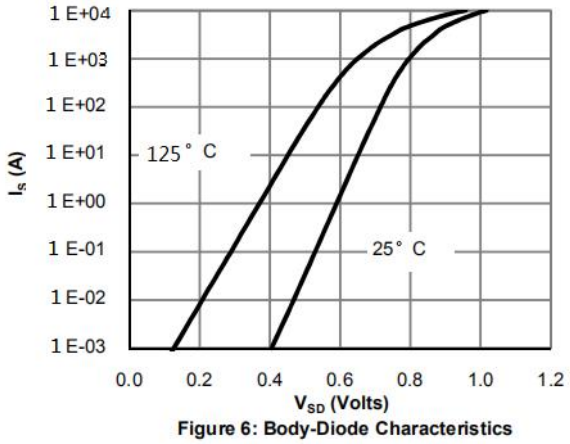


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

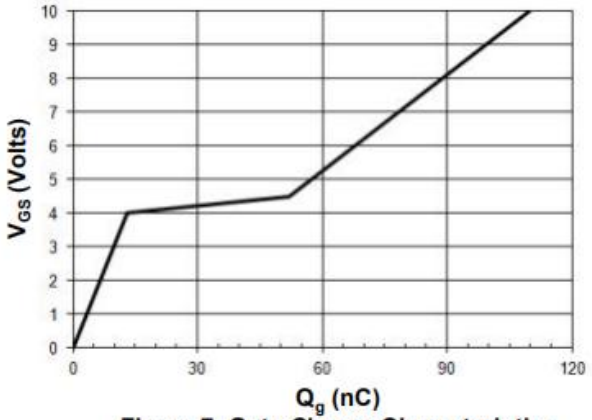


Figure 7: Gate-Charge Characteristics

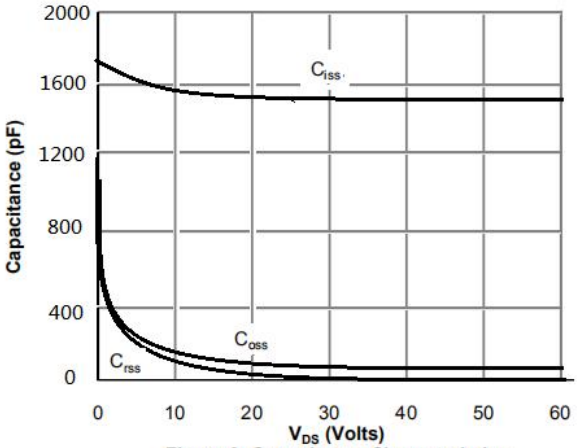


Figure 8: Capacitance Characteristics

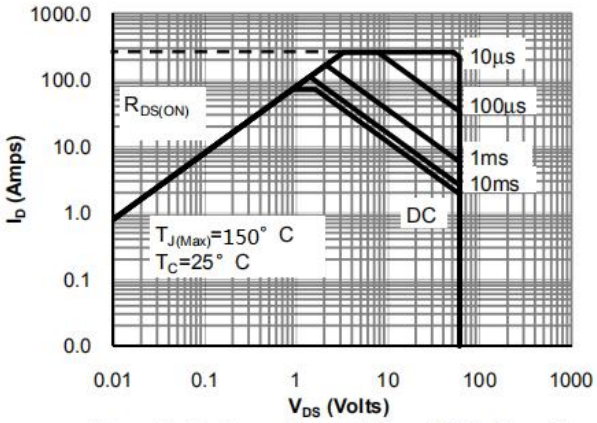


Figure 9: Maximum Forward Biased Safe Operating Area

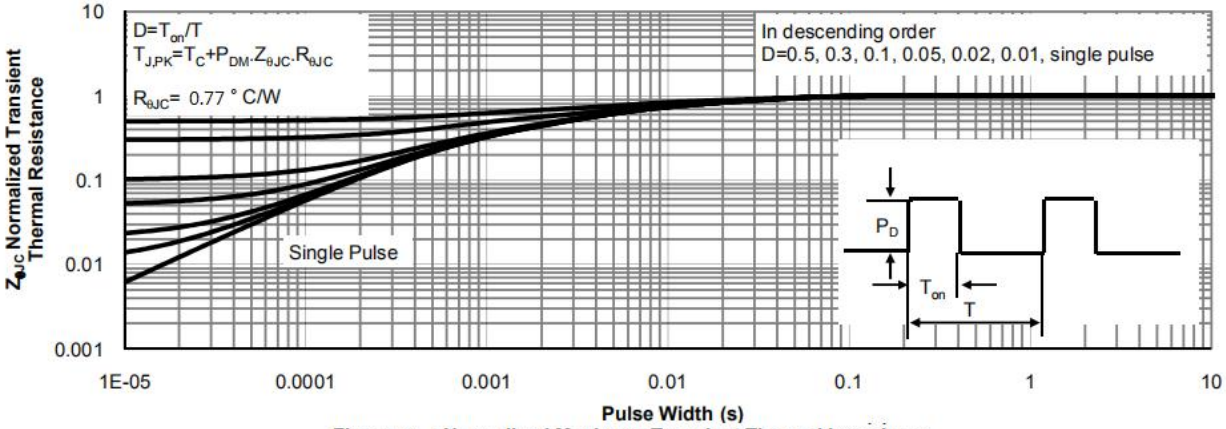
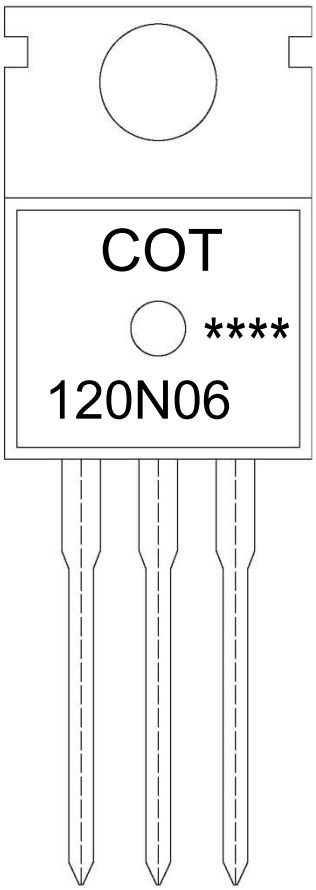


Figure 10 : Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

COT: Company Logo.

120N06: Product Type.

****: Lot No. Code, code change with Lot No.

Packaging SPEC.

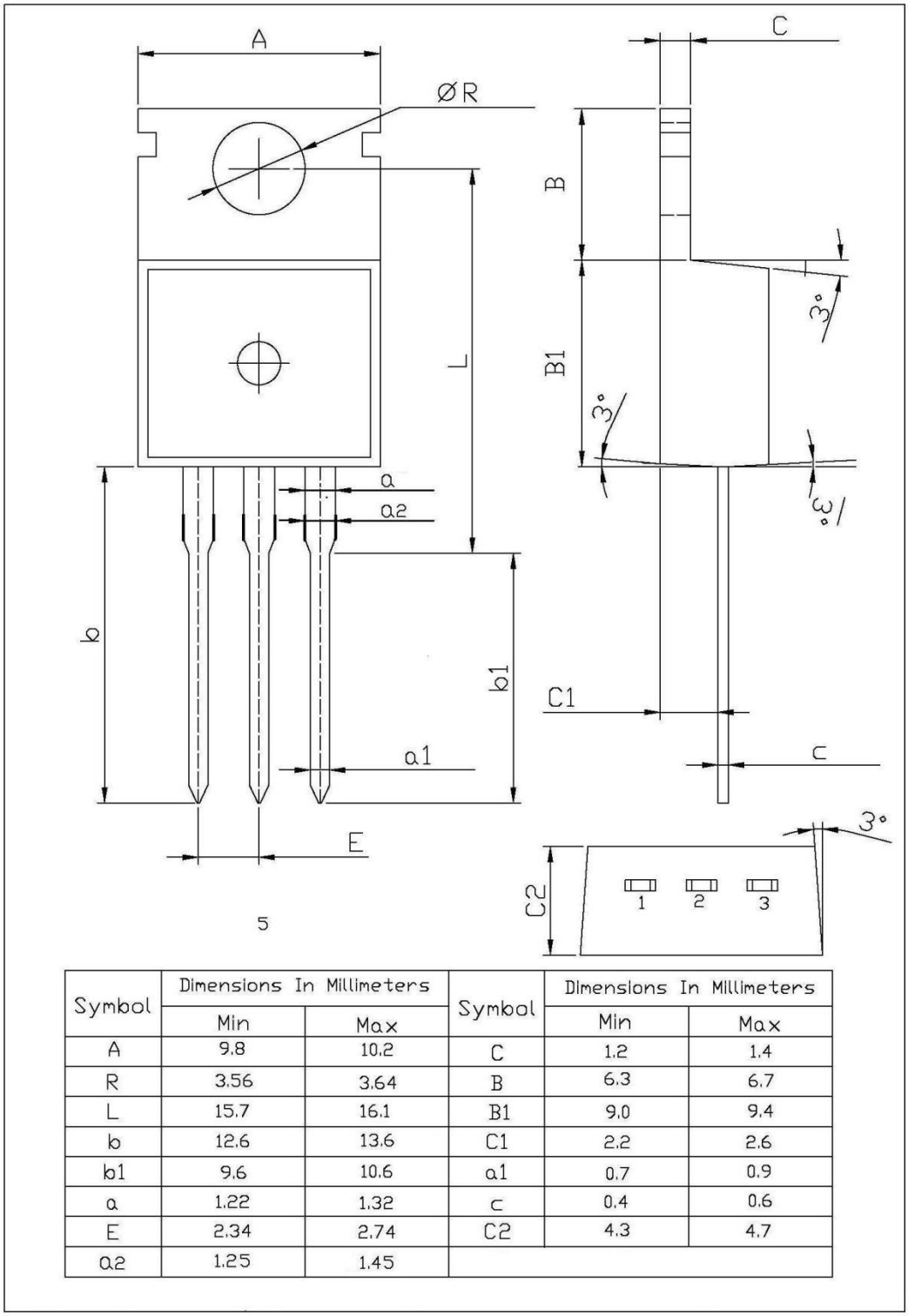
BULK AND TUBE INFOMATIONS

Package Type	Units					Dimension (unit: mm³)		
	Units/Bag	Bags/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Bag	Inner Box	Outer Box
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

Package Type	Units					Dimension (unit: mm³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

Package Outline Dimensions

TO-220 单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
L	15.7	16.1	B1	9.0	9.4
b	12.6	13.6	C1	2.2	2.6
b1	9.6	10.6	a1	0.7	0.9
a	1.22	1.32	c	0.4	0.6
E	2.34	2.74	C2	4.3	4.7
a2	1.25	1.45			