

/ Descriptions

TO-247

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N-CHANNEL MOSFET in a TO-247 Plastic Package.

/ Features

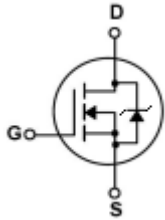
Low gate charge minimize switching loss and fast recovery body diode.HF Product.

/ Applications

DC/DC

UPS

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

/ Equivalent Circuit**/ Pinning**

PIN1 G PIN 2 D PIN 3 S

/ h_{FE} Classifications & Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	120	A
	$I_D(T_c=100^\circ\text{C})$	88	A
Pulsed Drain Current	I_{DM}	480	A
Gate-Source Voltage	V_{GSS}	± 20	V
Avalanche Current	I_{AR}	76.7	A
Avalanche energy L=0.5mH	E_{AS}	1200	mJ
Total Power Dissipation	$P_D(T_c=25^\circ\text{C})$	300	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 175	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	60	66		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=60A$		7	8	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V$ $I_D=60A$	60			S
Forward On Voltage	V_{SD}	$V_{GS}=0V$ $I_S=60A$			1.3	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$		2800		pF
Output Capacitance	C_{oss}			1030		
Reverse Transfer Capacitance	C_{rss}			520		
Total Gate Charge	Q_g	$V_{DD}=30V$ $I_D=60A$ $V_{GS}=0V-10V$		110		nC
Gate-Source charge	Q_{gs}			13		
Gate-Drain charge	Q_{gd}			52		
Gate Series Resistan	R_g	$f=1.0MHz$		0.8		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V$ $I_D=60A$ $V_{GS}=10V$ $R_G=2.5\Omega$		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

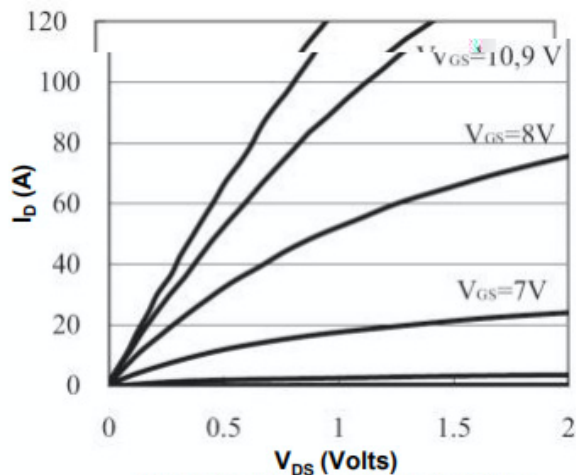


Fig 1: On-Region Characteristics

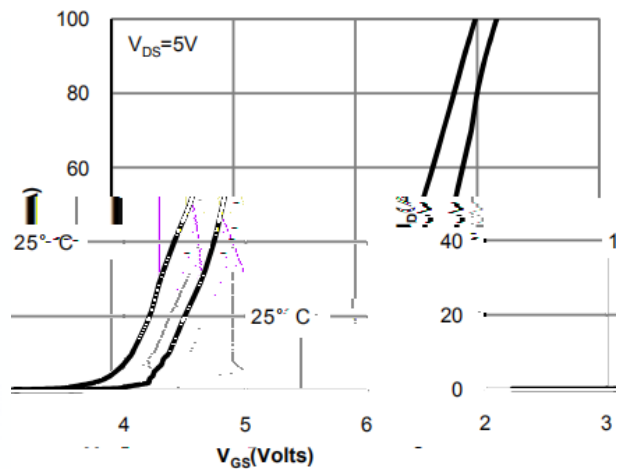


Figure 2: Transfer Characteristics

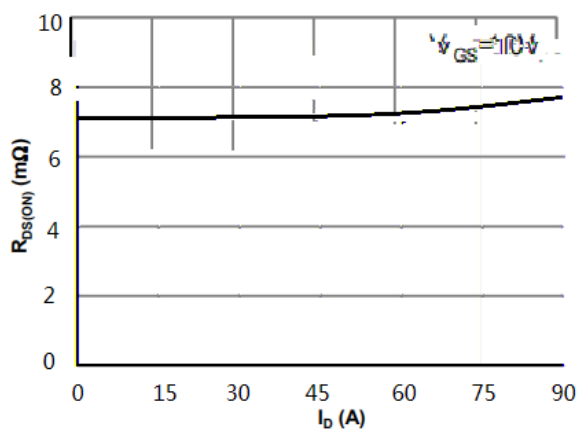


Figure 3: On-Resistance vs. Drain Current and Gate-Source Voltage

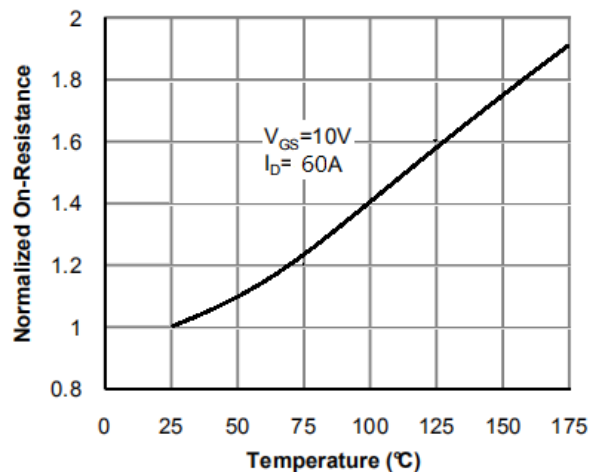


Figure 4: On-Resistance vs. Junction Temperature

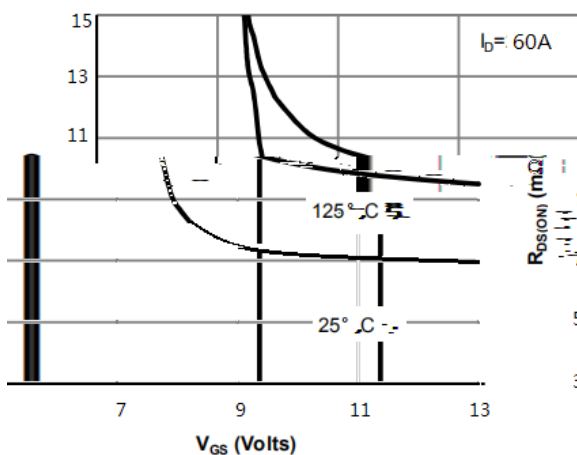


Figure 5: On-Resistance vs. Gate-Source Voltage

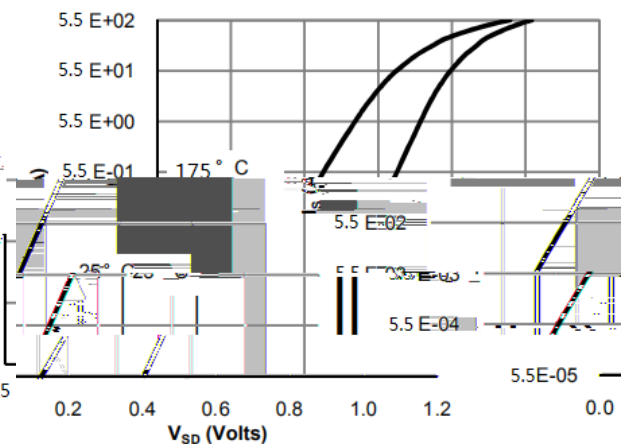


Figure 6: Body Diode Characteristics

/ Electrical Characteristic Curve

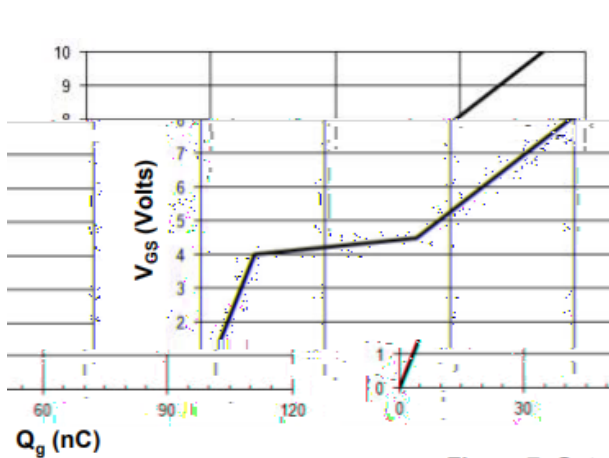


Figure 7: Gate Charge Characteristics

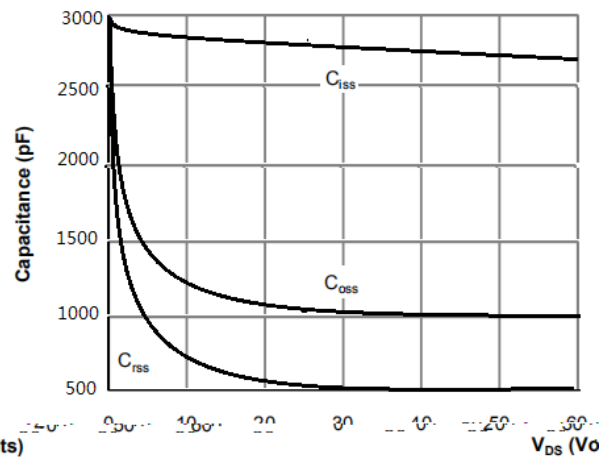


Figure 8: Capacitance Characteristics

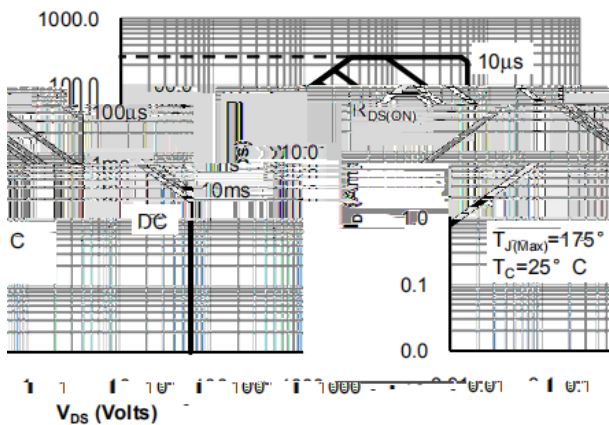


Figure 9: Maximum Forward Biased Safe Operating Area

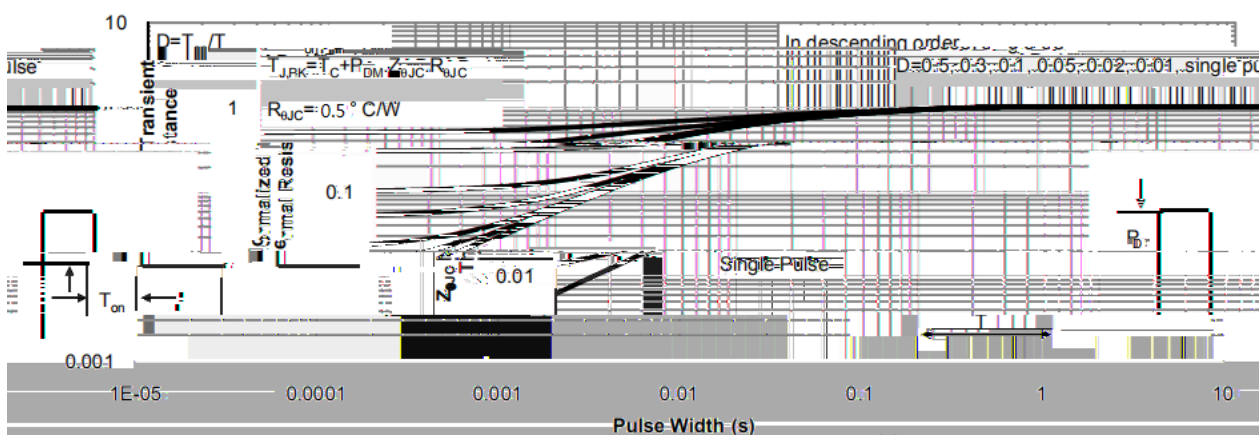
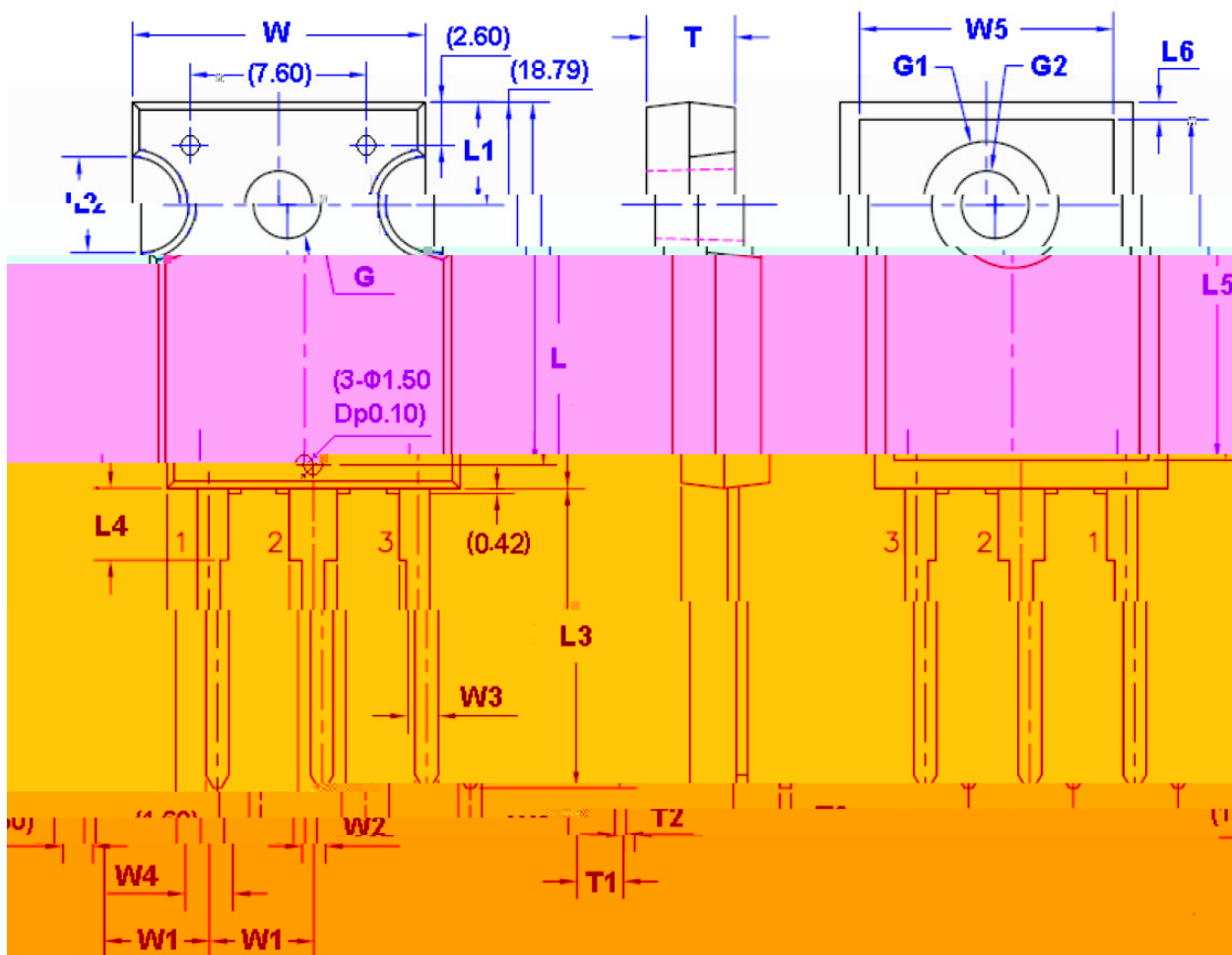


Figure 10 : Normalized Maximum Transient Thermal Impedance



/ Package Dimensions

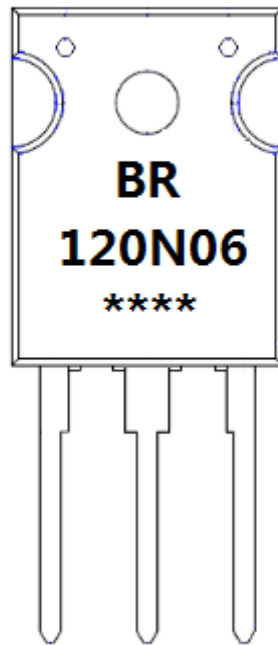


(单位: mm)

尺寸	尺寸	尺寸	尺寸
Min	Max	Min	Max
15.35~15.65	15.65~15.85	12.67~12.87	12.87~13.07
5.55(TYP)	5.55	20.32	20.32
1.17	1.35	5.34	5.58
1.53	1.77	4.96	5.20
2.42	2.66	15.75	16.25

当尺寸公差带标注为()时,表示该尺寸符合公差带要求

/ Marking Instructions

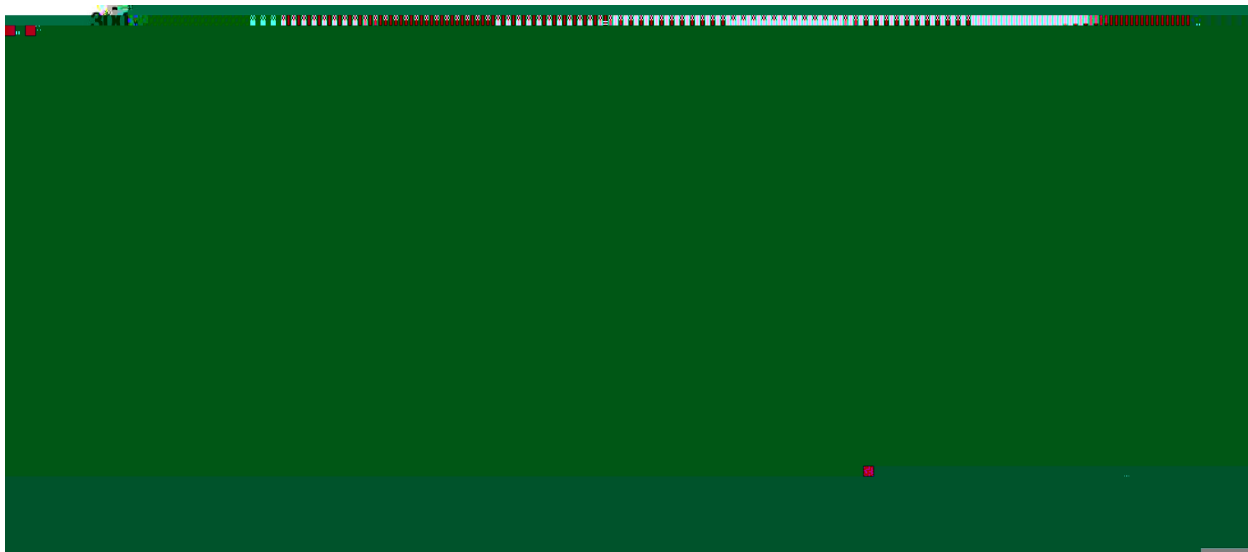


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Note:

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() / Temperature Profile for Dip Soldering(Pb-Free)


Note:

- | | | | | | |
|---|-------|-----|-----------|---|--------------------------------------|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 255±5 | | 5±0.5sec; | 2.Peak Temp.:255±5 , Duration:5±0.5sec. | |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

270±5	10±1 sec.	Temp.:270±5	Time:10±1 sec
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/ Packaging SPEC.
/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-247	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

/ Notices