描述 / Descriptions

TO-263 塑封封装 N 沟道场效应管。

N-CHANNEL MOSFET in a TO-263 Plastic Package.

特征 / Features

低电阻,开关速度快，无卤产品。

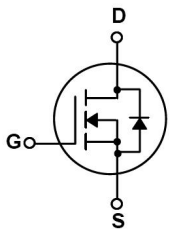
Ultra Low On-Resistance,fast switching, HF Product.

用途 / Applications

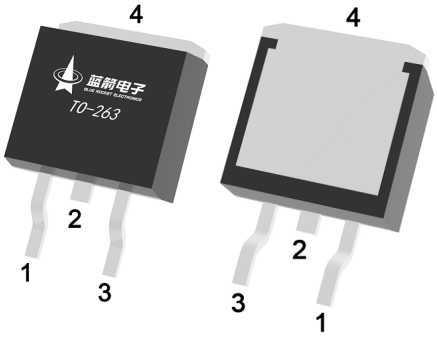
高频开关和同步整流、BMS、电机。

High frequency switching and synchronous rectification, BMS, Motor.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1：G　　PIN 2、4：D　　PIN 3：S

印章代码 / Marking

见印章说明。 See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	100	V
Drain Current		I_D(Tc=25℃)	150	A
Pulsed Drain Current		I_{DM}	319	A
Gate-Source Voltage		V_{GS}	±20	V
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	381	mJ
Avalanche Current		I_{AS}	33	A
Total Power Dissipation		P_D(Tc=25℃)	180	W
Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	℃
Thermal Resistance-Junction to Ambient	t≤10s	$R_{\theta JA}$	17	℃/W
	Steady-State		62.5	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	0.69	

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	100	109		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	2	2.6	4	V
Static Drain-Source On-Resistance	$R_{DS(on)1}$	V_{GS}=10V I_D=20A		3.2	4.5	mΩ
	$R_{DS(on)2}$	V_{GS}=6V I_D=10A		4.2	6.5	mΩ
Forward On Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Gate resistance	R_g	f=1MHz		1.3		Ω
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1MHz		6950		pF
Output Capacitance	C_{oss}			955		
Reverse Transfer Capacitance	C_{rss}			124		
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V, V_{DS}=50V, I_D=20A		90		nC
Gate Source Charge	Q_{gs}			28		
Gate Drain Charge	Q_{gd}			19		

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=50V R_L=2.5Ω R_{GEN}=3Ω		27		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			50		
Turn-Off Fall Time	t_f			25		

电参数曲线图 / Electrical Characteristic Curve

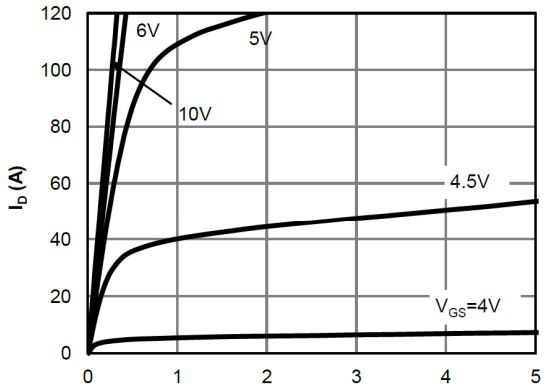


Figure 1: On-Region Characteristics

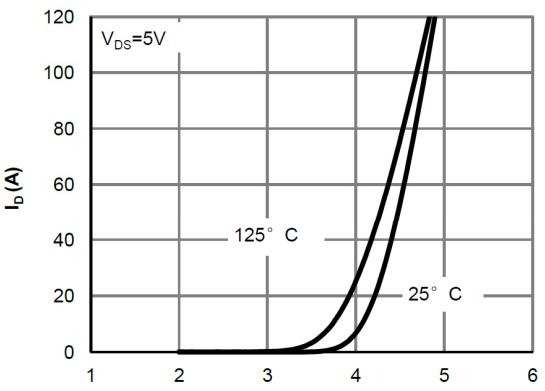


Figure 2: Transfer Characteristics

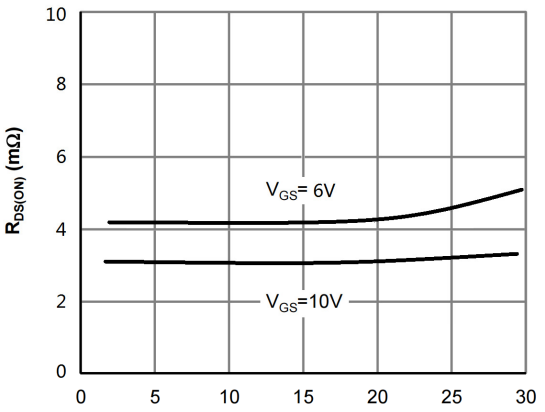


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

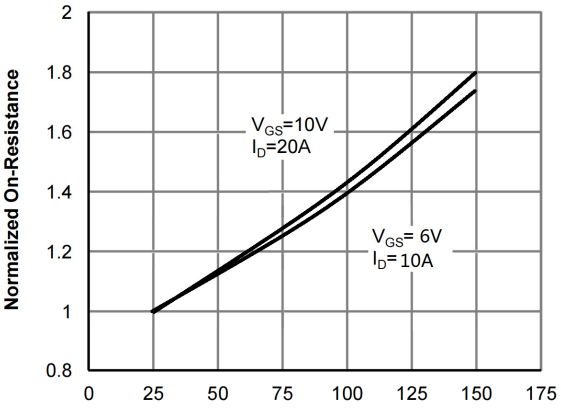


Figure 4: On-Resistance vs. Junction Temperature

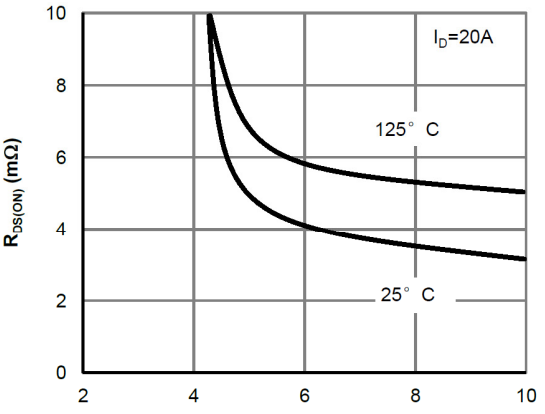


Figure 5: On-Resistance vs. Gate-Source Voltage

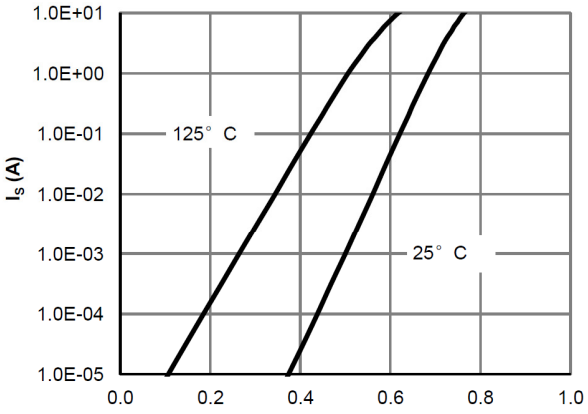


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

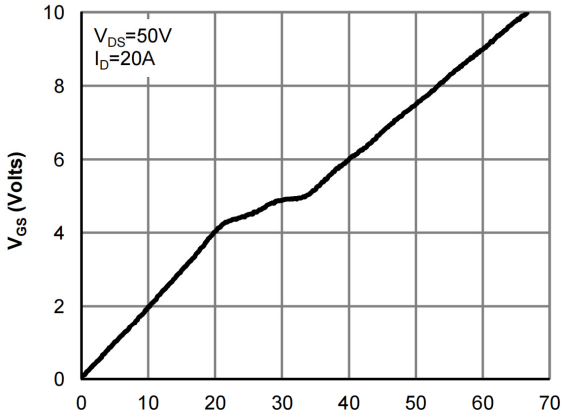


Figure 7: Gate-Charge Characteristics

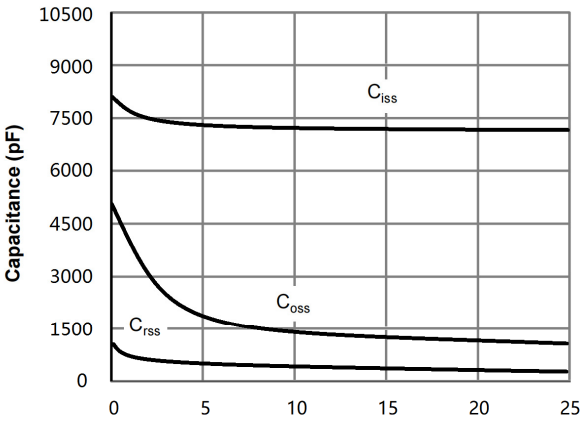


Figure 8: Capacitance Characteristics

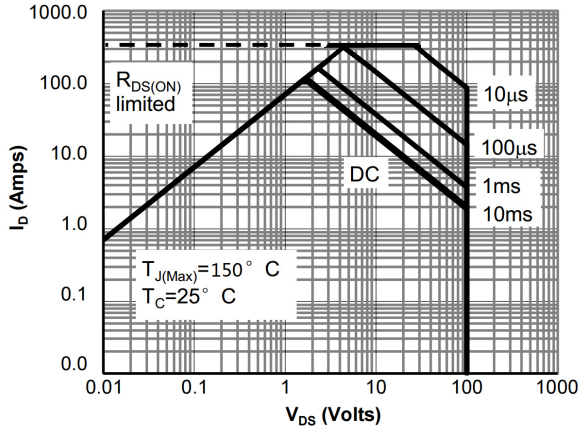


Figure 9: Maximum Forward Biased Safe Operating Area

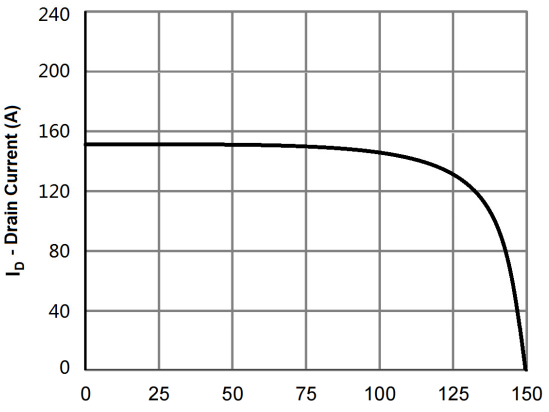


Figure 10: Maximum Continuous Drain Current vs Case Temperature

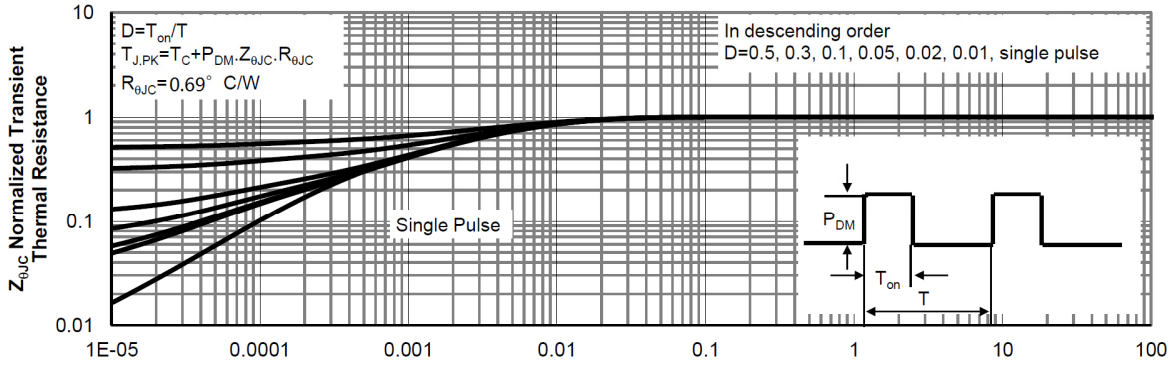
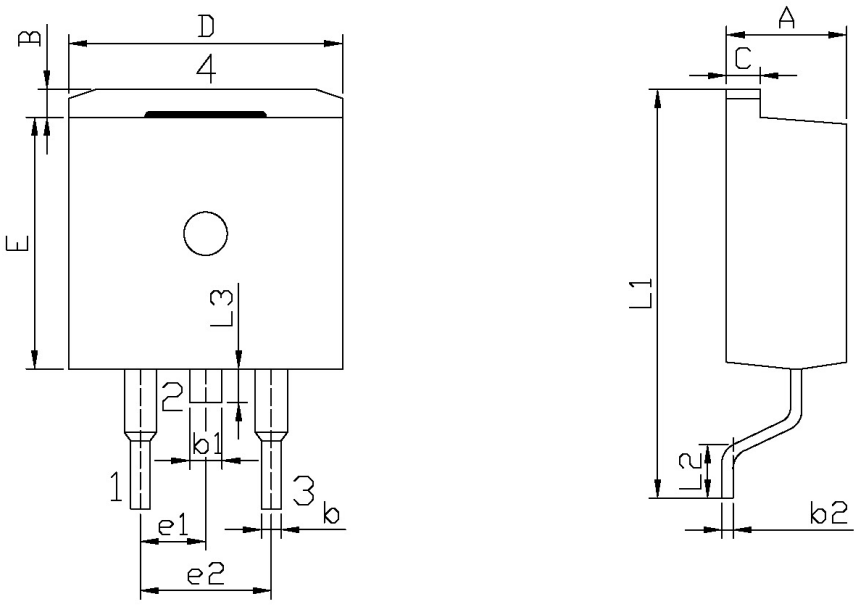


Figure 11: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions



单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.30	4.70	E	9.00	9.40
B	1.00	1.40	e1	2.34	2.74
b	0.70	0.90	e2	4.88	5.28
b1	1.15	1.35	L1	15.00	16.00
b2	0.40	0.60	L2	2.24	2.84
C	1.20	1.40	L3	1.20	1.60
D	9.80	10.20			

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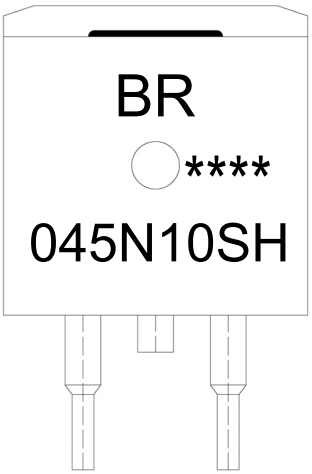
印章说明 / Marking Instructions



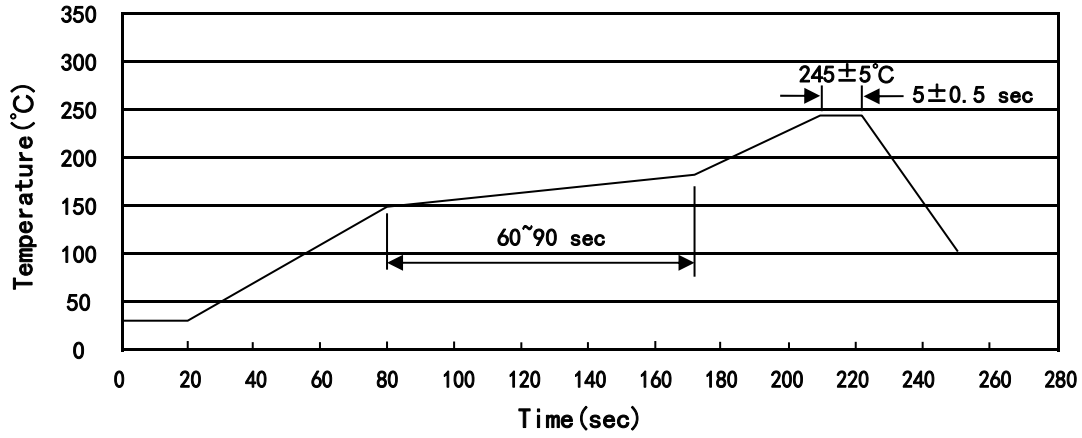
说明：

BR：	为公司代码
045N10SH：	为型号代码
****：	为生产批号代码，随生产批号变化

Note:

BR:	Company Code
045N10SH:	Product Type
****:	Lot No. Code, code change with Lot No

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

1、预热温度 150～180℃，时间 60～90sec;

2、峰值温度 245±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:150~180℃, Time:60~90sec.

2.Peak Temp.:245±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5℃　　时间：10±1 sec.　　Temp.:260±5℃　　Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
TO-263	800	1	800	6	4,800	13″ ×24	360×360×50	380×335×366

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit：mm³)		
	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-263	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

使用说明 / Notices