BRCS070P03BD
Rev.A May.-2024

DATA SHEET

描述 / Descriptions

TO-263 塑封封装 P 沟道场效应管。

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

特征 / Features

V_{DS}=-30V　　I_D=-98A

$R_{DS(on)}$@-10V≤7.0mΩ(Type.6.7mΩ)

$R_{DS(on)}$@-4.5V≤15mΩ(Type.9.0mΩ)

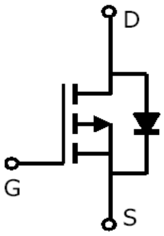
无卤产品。HF Product.

用途 / Applications

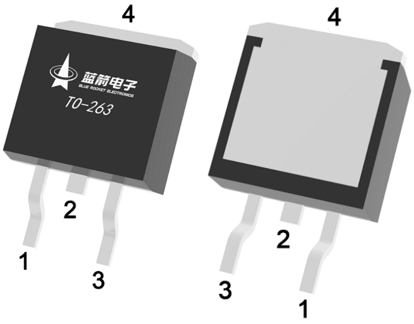
高频开关和同步整流、BMS、电机。

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(T_a=25℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DS}	-30	V
Drain Current - Continuous		I_D(T_c=25℃)	-98	A
Drain Current – Pulsed		I_{DM}	-310	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(T_c=25℃)	100	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	360	mJ
Avalanche Current(L=0.5mH)		I_{AS}	30	A
Junction and Storage Temperature Range		$T_{j,}$ T_{stg}	-55 to 150	℃
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	65	℃/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.25	

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}	I_D=-250μA V_{GS}=0V	-30	-34		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V V_{GS}=0V			-1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS I_D=-250μA	-1	-1.4	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-20A		6.7	7	mΩ
		V_{GS}=-4.5V, I_D=-10A		9.0	15	
Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V			-1.2	V
Input Capacitance	C_{iss}	V_{DS}=-25V V_{GS}=0V f=1.0MHz		3260		pF
Output Capacitance	C_{oss}			335		
Reverse Transfer Capacitance	C_{rss}			330		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		5.6		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=-10V, V_{DS}=-15V, I_D=-20A		51		nC
Total Gate Charge	$Q_{g(4.5V)}$			32		
Gate Source Charge	Q_{gs}			11		
Gate Drain Charge	Q_{gd}			13		

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}=-15V R_L=0.75Ω R_{GEN}=3Ω		12.5		ns
Turn-On Rise Time	t_r			19		
Turn-Off Delay Time	$t_{d(off)}$			125		
Turn-Off Fall Time	t_f			67		

电参数曲线图 / Electrical Characteristic Curve

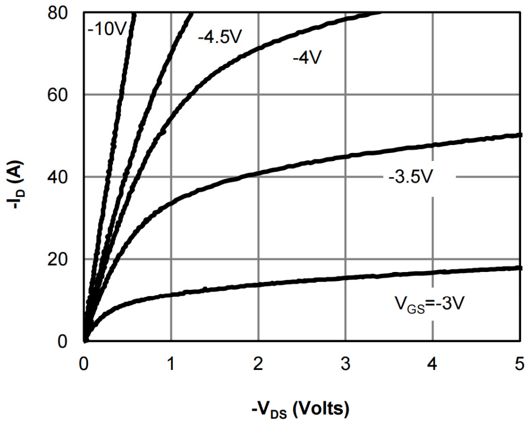


Figure 1: On-Region Characteristics

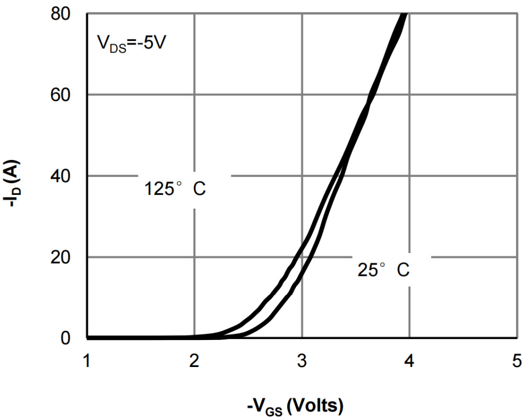


Figure 2: Transfer Characteristics

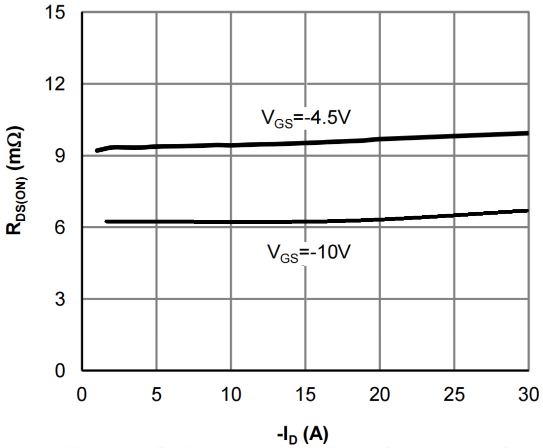


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

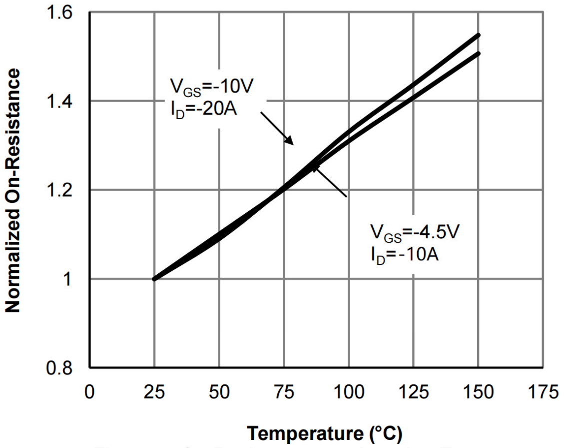


Figure 4: On-Resistance vs. Junction Temperature

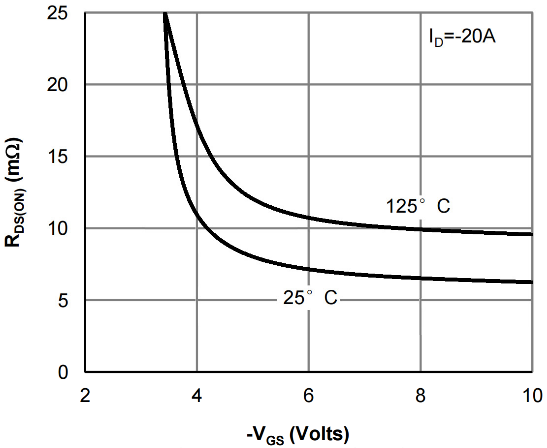


Figure 5: On-Resistance vs. Gate-Source Voltage

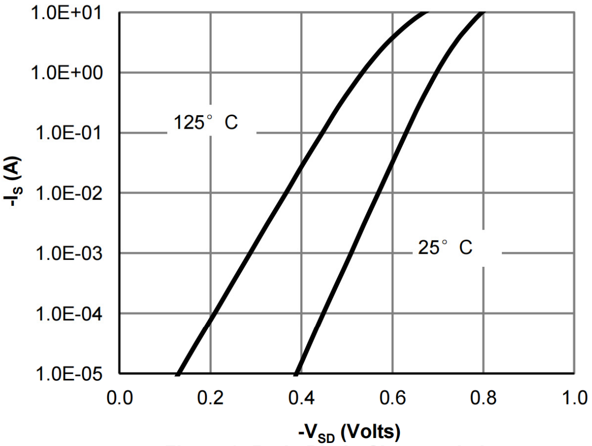


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

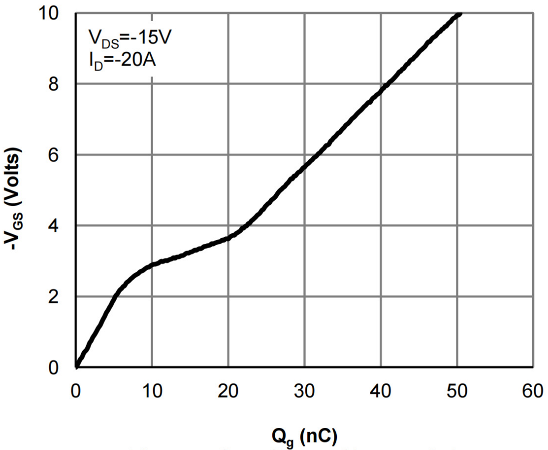


Figure 7: Gate-Charge Characteristics

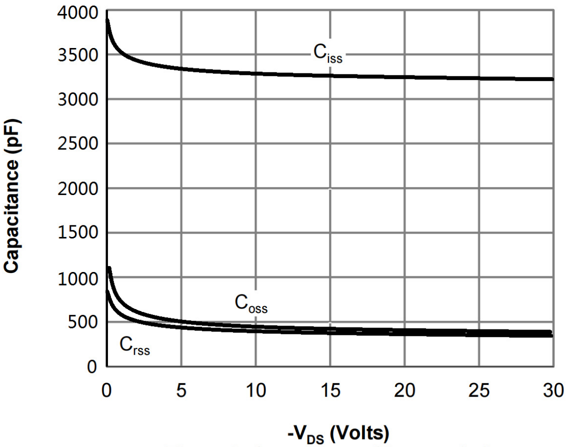


Figure 8: Capacitance Characteristics

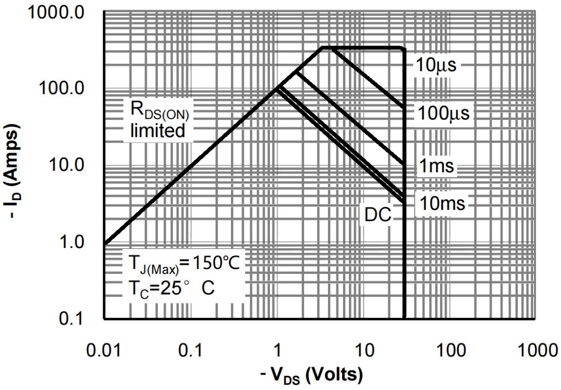


Figure 9: Maximum Forward Biased Safe Operating Area

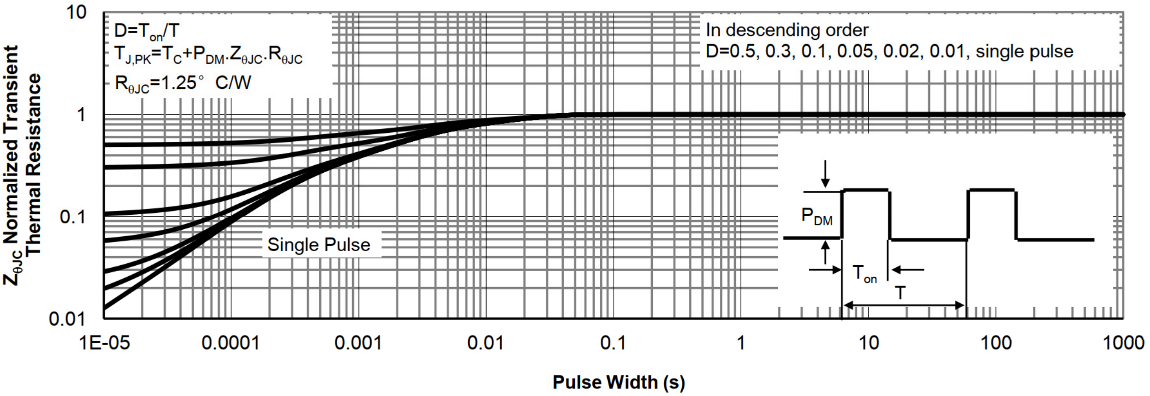
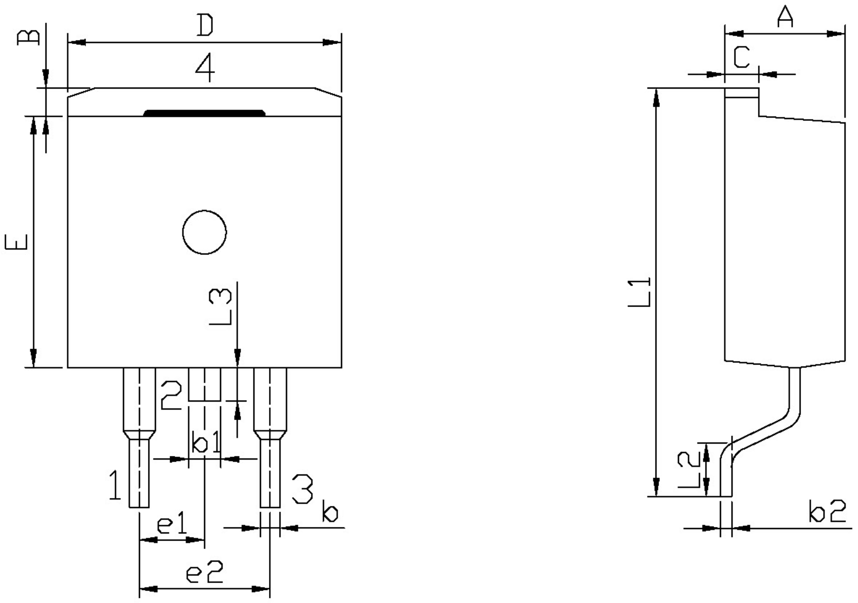


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

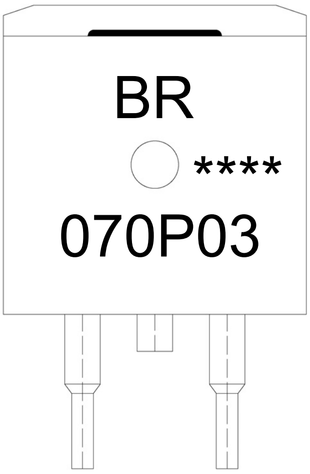


单位：mm

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			

TO-263

印章说明 / Marking Instructions



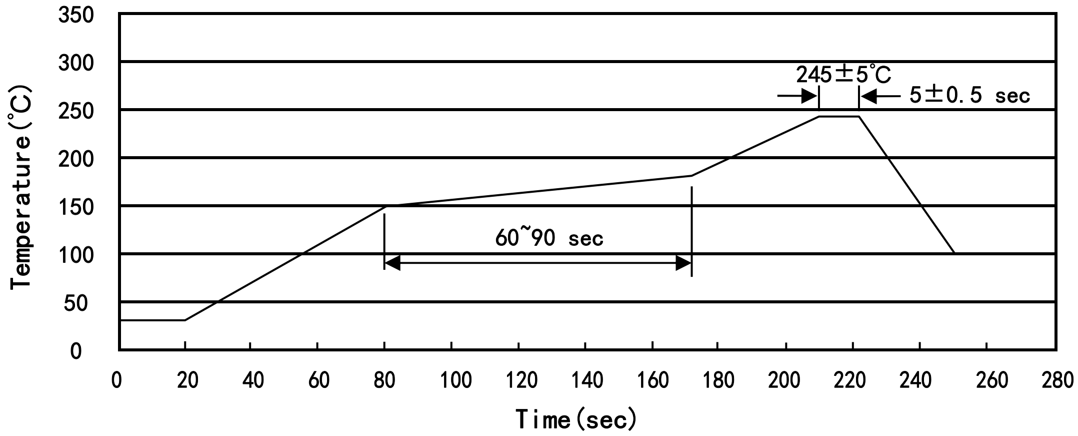
说明：

BR：	为公司代码
070P03：	为型号代码
****：	为生产批号代码，随生产批号变化

Note:

BR:	Company Code
070P03:	Product Type Code
****:	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