

BRCS080C04SC

Rev.B Aug.-2023

DATA SHEET

描述 / Descriptions

SOP-8 塑封封装互补增强模式场效应管。

Complementary Enhancement MOSFET in a SOP-8 Plastic Package.

特征 / Features

N-channel

$V_{DS}(V)=40V$ $I_D=15A$

$R_{DS(ON)}@10V < 9m\Omega$ (Typ. $8m\Omega$)

$R_{DS(ON)}@4.5V < 15m\Omega$ (Typ. $10m\Omega$)

无卤产品。HF Product.

P-channel

$V_{DS}(V)=-40V$ $I_D=-11A$

$R_{DS(ON)}@-10V < 15m\Omega$ (Typ. $13m\Omega$)

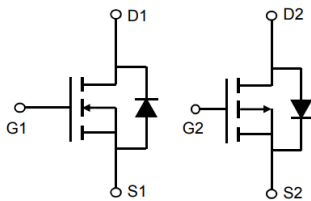
$R_{DS(ON)}@-4.5V < 30m\Omega$ (Typ. $17m\Omega$)

用途 / Applications

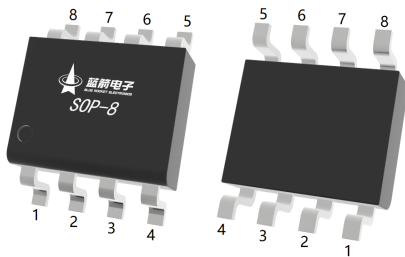
电池保护开关, 移动设备电池充放电, 负载开关。

Battery protection switch, Mobile device battery charging and discharging, Load switch.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : S1 PIN 2 : G1 PIN 3 : S2 PIN 4 : G2

PIN 5 : D2 PIN 6 : D2 PIN 7 : D1 PIN 8 : D1

印章代码 / Marking

见印章说明。

See Marking Instructions.

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

参数 Parameter	符号 Symbol	数值 Rating		单位 Unit
		N-channe	P-channell	
Drain-Source Voltage	V_{DSS}	40	-40	V
Gate-Source Voltage	V_{GSS}	±20		V
Continuous Drain Current	I_D	15	-11	A
Pulsed Drain Current	I_{DM}	49	-35	A
Power Dissipation	P_D	3.5	3	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		°C
Maximum Junction-to-Ambient	$R_{\theta JA}$	90		°C/W

N-沟道电性能参数/N-CHANNEL Electrical Characteristics(Ta=25°C)

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}	$V_{GS}=0V$ $I_D=250\mu A$	40	47		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$ $V_{GS}=0V$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=10A$		8	9	$m\Omega$
		$V_{GS}=4.5V$ $I_D=5A$		10	15	$m\Omega$
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1.0A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		850		pF
Output Capacitance	C_{oss}			115		pF
Reverse Transfer Capacitance	C_{rss}			30		pF
Gate resistance	R_g	$V_{DS}=0V$ $f=1.0MHz$ $V_{GS}=0V$		2.4		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=20V$ $I_D=10A$		21		nC
Total Gate Charge	$Q_{g(4.5V)}$			8.6		nC
Gate-Source Charge	Q_{gs}			5.7		nC
Gate-Drain Charge	Q_{gd}			3		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=20V$ $V_{GS}=10V$ $R_L=1.0\Omega$ $R_{GEN}=3\Omega$		7.5		ns
Turn-On Rise Time	t_r			2.1		ns
Turn-Off Delay Time	$t_{d(off)}$			23		ns
Turn-Off Fall Time	t_f			3		ns

N-沟道电参数曲线图 / N-CHANNEL Electrical Characteristic Curve

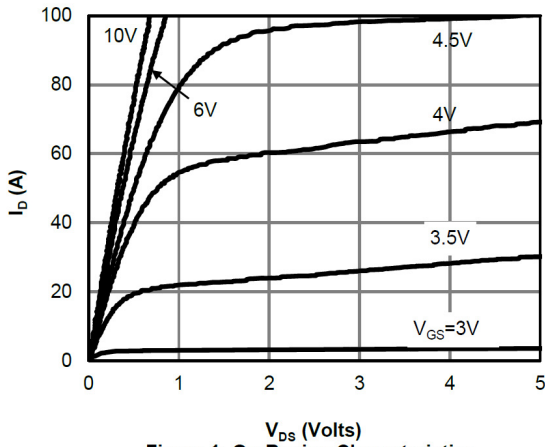


Figure 1: On-Region Characteristics

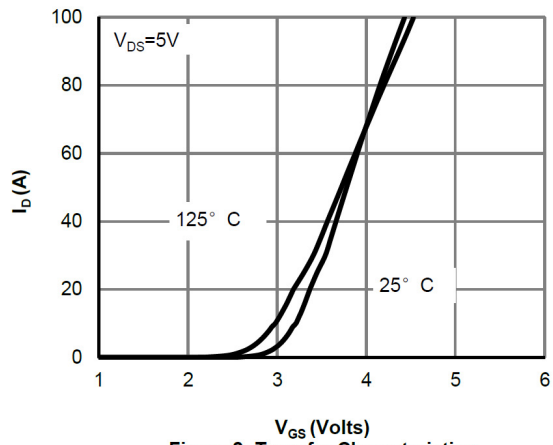


Figure 2: Transfer Characteristics

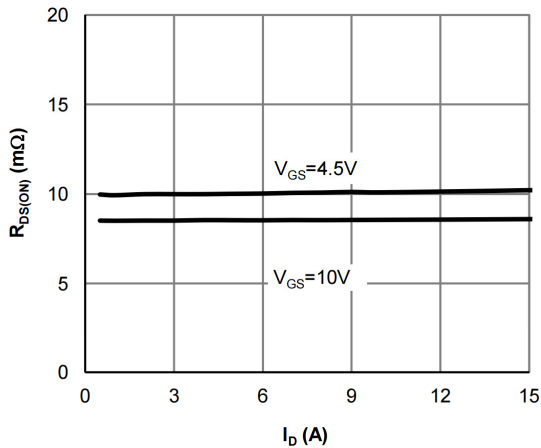


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

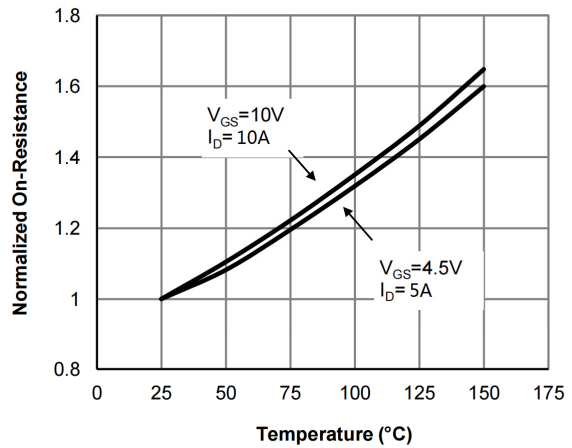


Figure 4: On-Resistance vs. Junction Temperature

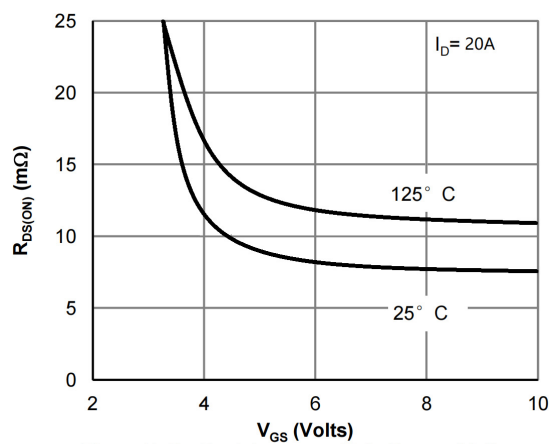


Figure 5: On-Resistance vs. Gate-Source Voltage

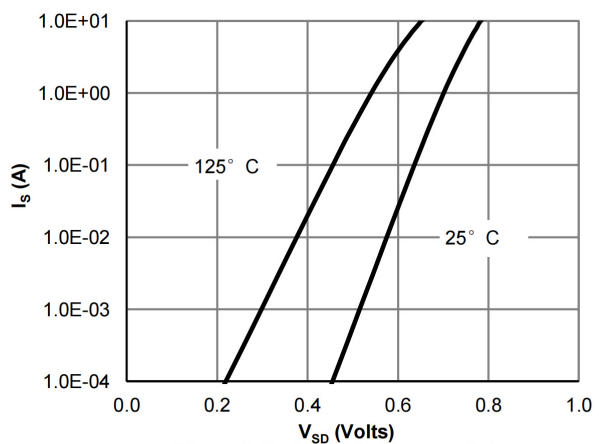


Figure 6: Body-Diode Characteristics

N-沟道电参数曲线图 / N-CHANNEL Electrical Characteristic Curve

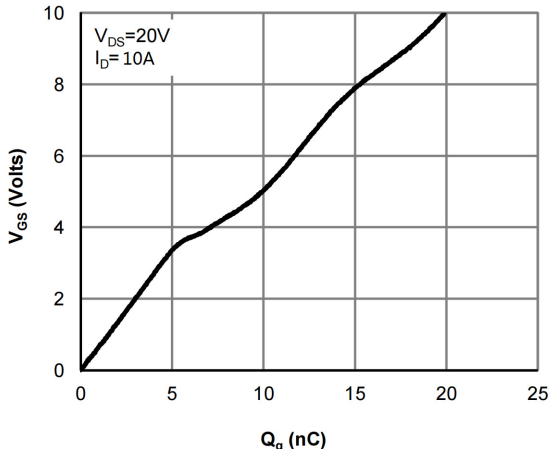


Figure 7: Gate-Charge Characteristics

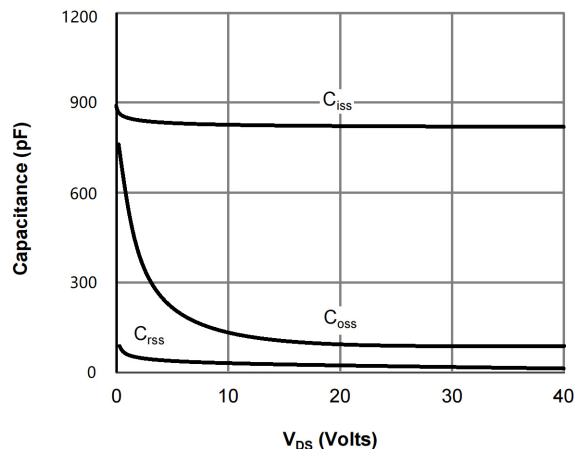


Figure 8: Capacitance Characteristics

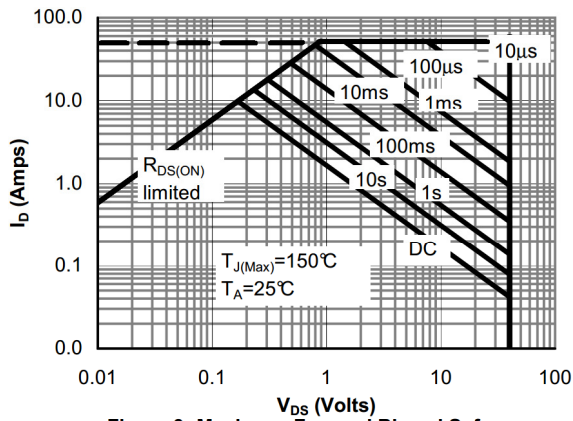


Figure 9: Maximum Forward Biased Safe Operating Area

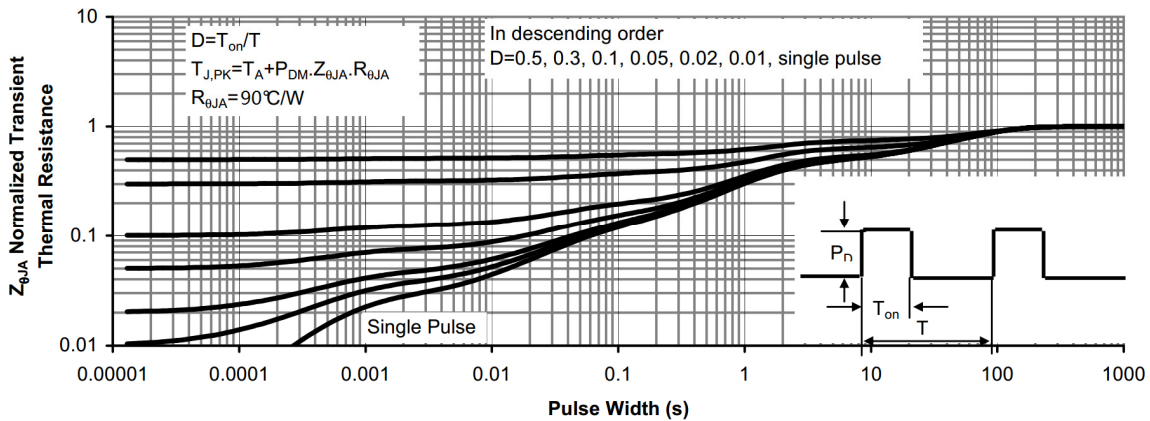


Figure 10: Normalized Maximum Transient Thermal Impedance

P-沟道电性能参数/P-CHANNEL Electrical Characteristics(Ta=25°C)

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	-40	-45		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-40V V _{GS} =0V			-1.0	μA
Gate-Body leakage current	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-1.0	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{Ds(on)}	V _{GS} =-10V I _D =-10A		13	15	mΩ
		V _{GS} =-4.5V I _D =-5A		17	30	mΩ
Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =-1.0A			-1.2	V
Input Capacitance	C _{iss}	V _{DS} =-25V V _{GS} =0V f=1.0MHz		2680		pF
Output Capacitance	C _{oss}			1150		pF
Reverse Transfer Capacitance	C _{rss}			870		pF
Gate resistance	R _g	V _{DS} =0V V _{GS} =0V f=1.0MHz		6.5		Ω
Total Gate Charge	Q _{g(10V)}	V _{GS} =-10V V _{DS} =-20V I _D =-10A		42		nC
Total Gate Charge	Q _{g(4.5V)}			18.6		nC
Gate-Source Charge	Q _{gs}			7		nC
Gate-Drain Charge	Q _{gd}			8.6		nC
Turn-On Delay Time	t _{d(on)}	V _{DS} =-20 V V _{GS} =-10V R _L =1Ω R _{GEN} =3Ω		9.4		ns
Turn-On Rise Time	t _r			20		ns
Turn-Off Delay Time	t _{d(off)}			55		ns
Turn-Off Fall Time	t _f			30		ns

P-沟道电参数曲线图 / P-CHANNEL Electrical Characteristic Curve

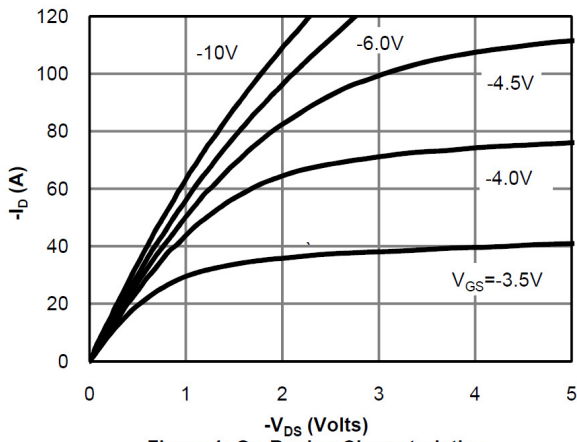


Figure 1: On-Region Characteristics

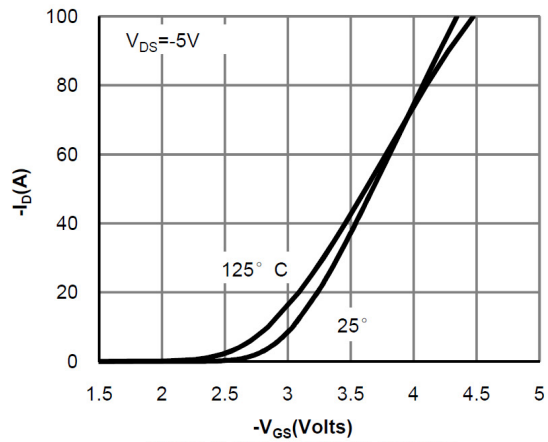


Figure 2: Transfer Characteristics

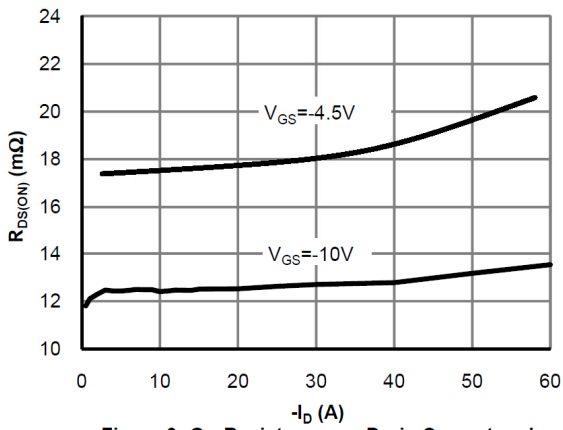


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

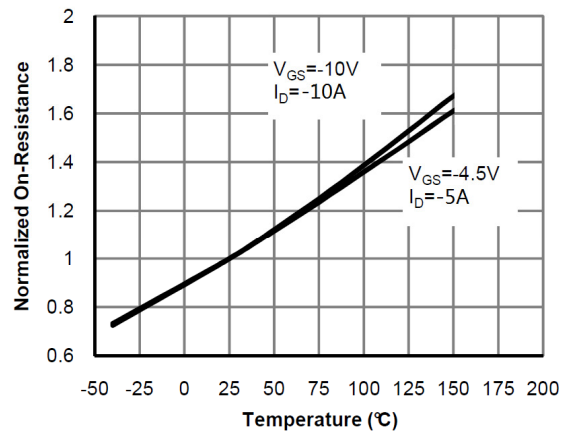


Figure 4: On-Resistance vs. Junction Temperature

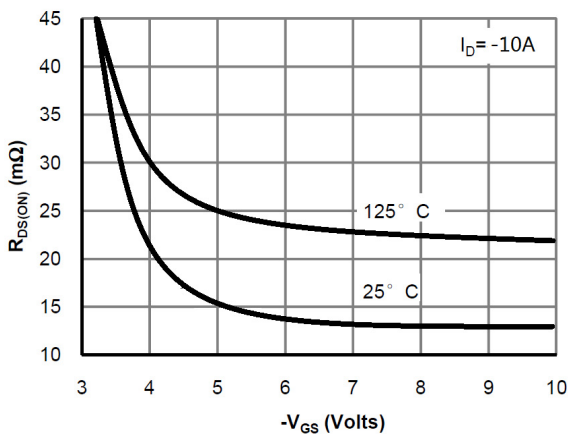


Figure 5: On-Resistance vs. Gate-Source Voltage

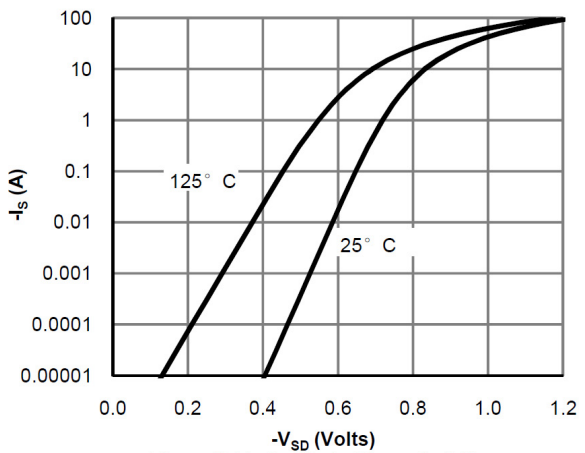


Figure 6: Body-Diode Characteristics

P-沟道电参数曲线图 / P-CHANNEL Electrical Characteristic Curve

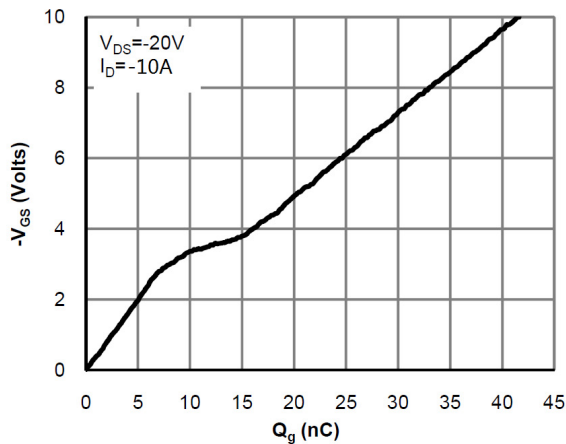


Figure 7: Gate-Charge Characteristics

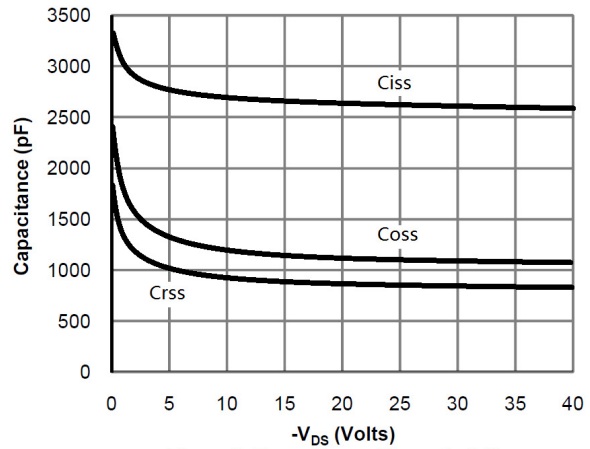


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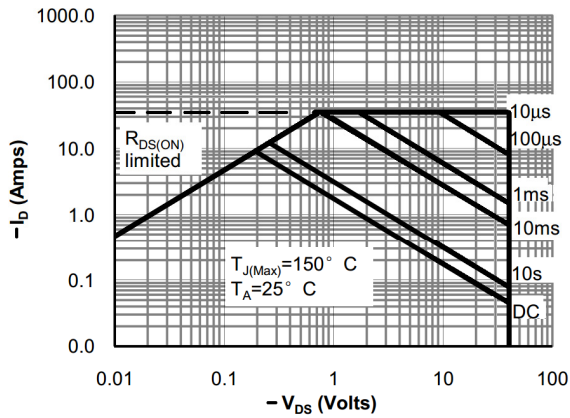


Figure 9: Maximum Forward Biased Safe Operating Area

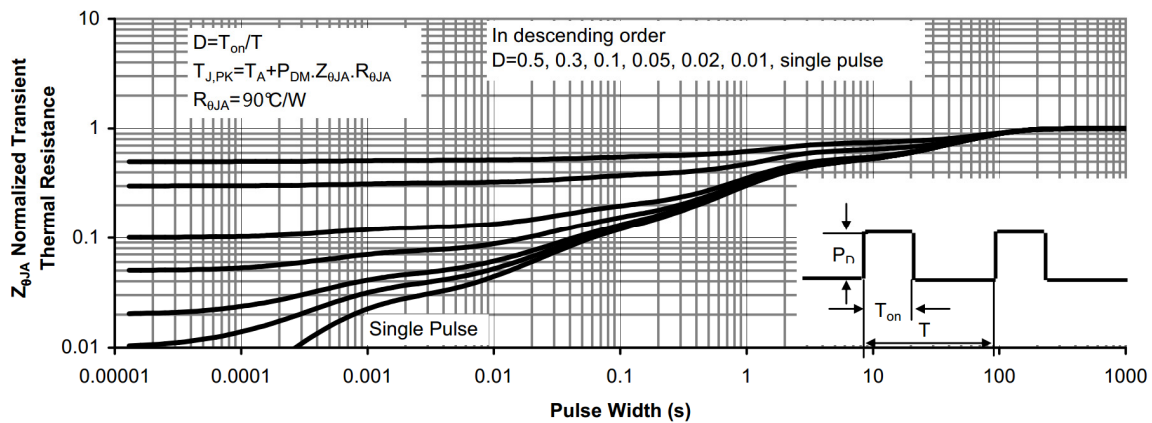
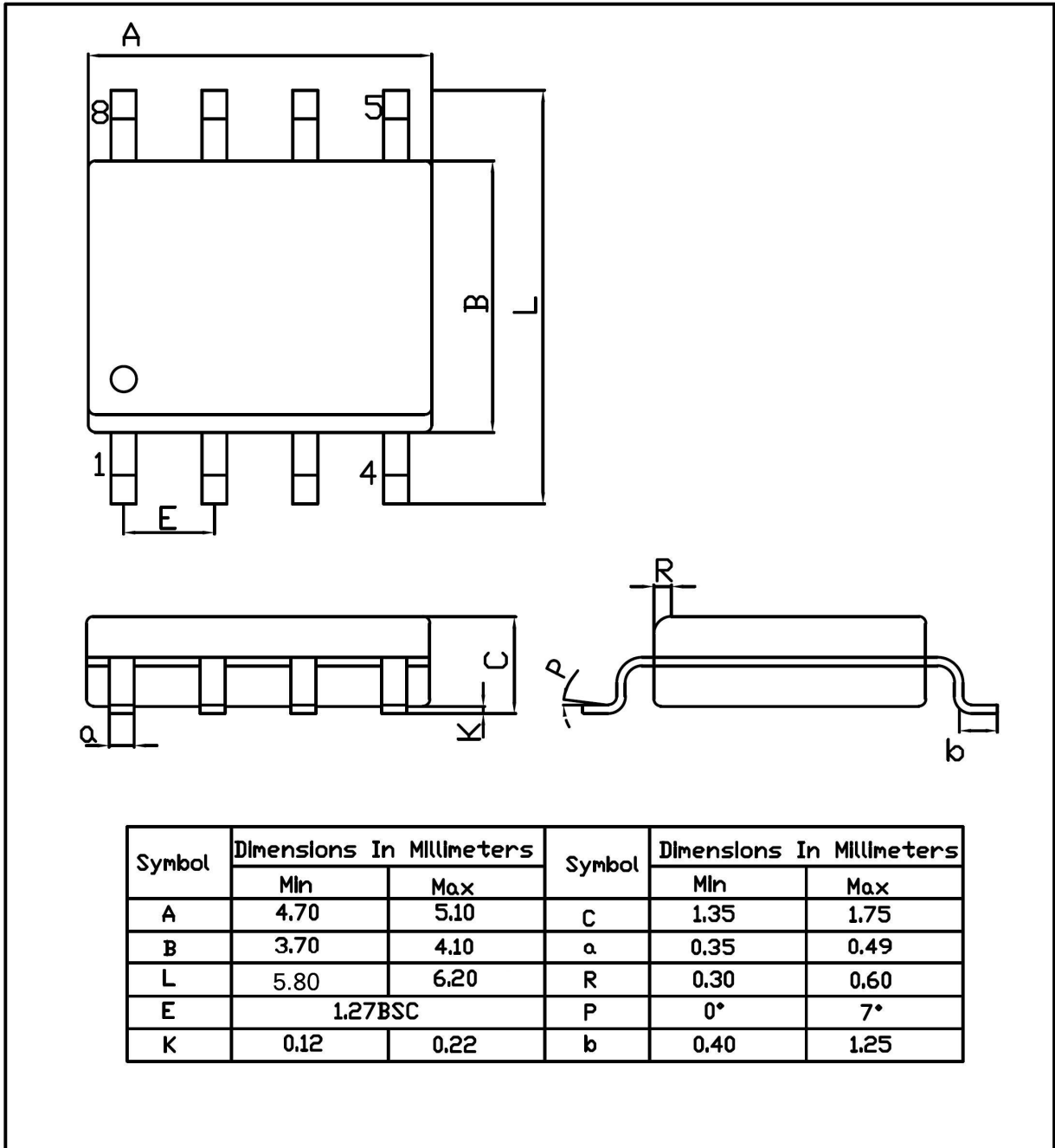


Figure 10: Normalized Maximum Transient Thermal Impedance

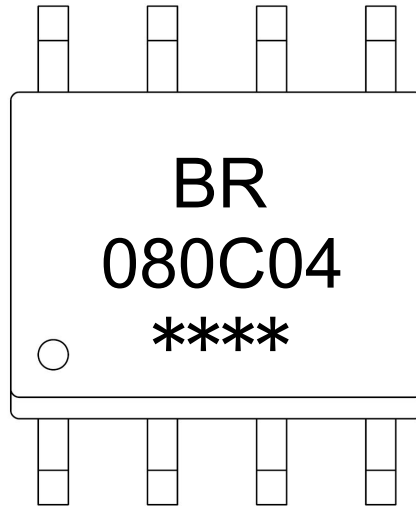
外形尺寸图 / Package Dimensions

SOP-8

Unit:mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

080C04： 为型号代码

****： 为生产批号代码，随生产批号变化

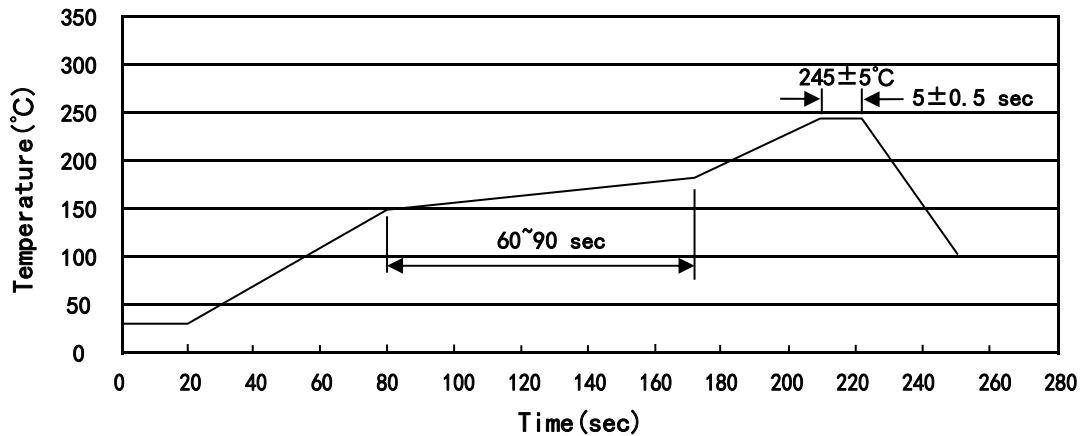
Note:

BR: Company Code

080C04: 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°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

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

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

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: mm ³)		
	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
SOP/ESOP-8	4,000	2	8,000	6	48,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices