

BRCS150C02YA

Rev.A Feb.-2023

DATA SHEET

描述 / Descriptions

PDFN3×3-8L 塑封封装互补增强模式场效应管。

Complementary Enhancement MOSFET in a PDFN3×3-8L Plastic Package.

特征 / Features

N-channel	P-channel
VDS(V)=20V	VDS(V)=-20V
ID=28A	ID=-25A
RDS(ON)<15mΩ (VGS=10V)	RDS(ON)<20mΩ (VGS=-10V)
RDS(ON)<20mΩ (VGS=4.5V)	RDS(ON)<25mΩ (VGS=-4.5V)
RDS(ON)<25mΩ (VGS=2.5V)	RDS(ON)<30mΩ (VGS=-2.5V)

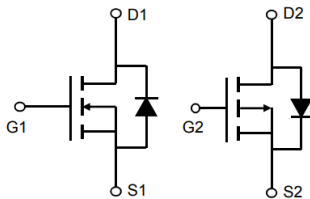
无卤产品。HF Product.

用途 / Applications

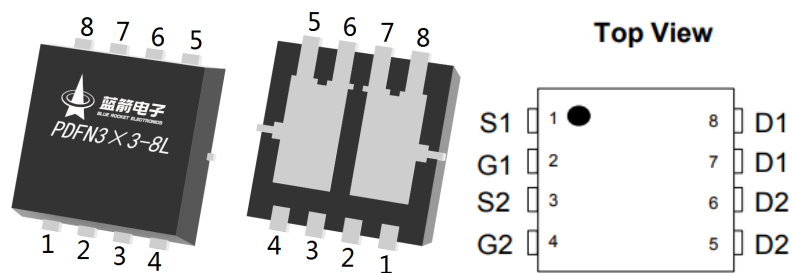
电池保护开关, 移动设备电池充放电, 负载开关。

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

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



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}	±20		V
Gate-Source Voltage	V_{GSS}	±12		V
Continuous Drain Current	$I_D (T_C=25^\circ C)$	28	-25	A
Pulsed Drain Current	I_{DM}	43	-38	A
Avalanche Current	I_{AS}	2.8	13.4	A
Avalanche energy L=0.5mH	E_{AS}	3.9	89.8	mJ
Power Dissipation	$P_D (T_C=25^\circ C)$	18	17	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150		°C
Maximum Junction-to-Ambient	$R_{\theta JA}$	95		°C/W
Maximum Junction-to-Case	$R_{\theta JC}$	7		°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}	$V_{GS}=0V$	$I_D=250\mu A$	20	22.5		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V$	$V_{GS}=0V$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 12V$	$V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	0.5	0.7	1.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$	$I_D=10A$		10	15	m Ω
		$V_{GS}=4.5V$	$I_D=5A$		11.5	20	m Ω
		$V_{GS}=2.5V$	$I_D=2.5A$		15	25	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$	$I_S=1.0A$		0.69	1.2	V
Input Capacitance	C_{iss}	$V_{DS}=15V$ $f=1.0MHz$	$V_{GS}=0V$		1000		pF
Output Capacitance	C_{oss}				715		pF
Reverse Transfer Capacitance	C_{rss}				680		pF
Gate resistance	R_g	$V_{DS}=0V$ $f=1.0MHz$	$V_{GS}=0V$		1.9		Ω
Total Gate Charge	Q_g	$V_{GS}=4.5V$ $I_D=8A$	$V_{DS}=10V$		13		nC
Gate-Source Charge	Q_{gs}				1.5		nC
Gate-Drain Charge	Q_{gd}				3.2		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=10V$ $R_L=1.25\Omega$	$V_{GS}=4.5V$ $R_{GEN}=3\Omega$		2.9		ns
Turn-On Rise Time	t_r				3.1		ns
Turn-Off Delay Time	$t_{d(off)}$				35		ns
Turn-Off Fall Time	t_f				10		ns

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

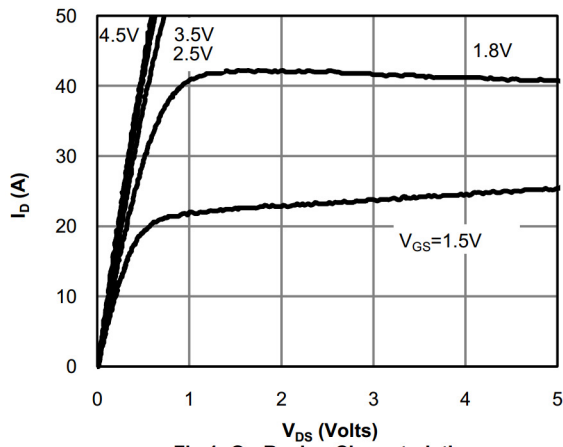


Fig 1: On-Region Characteristics

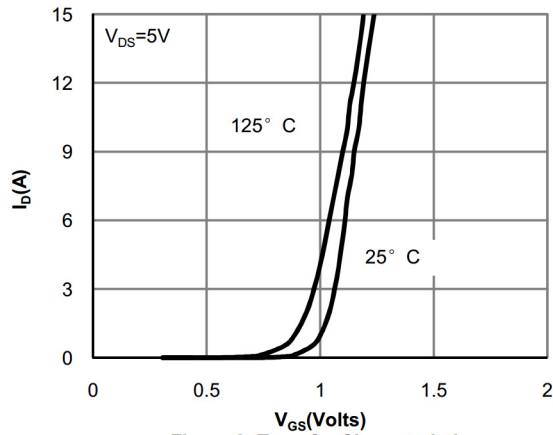


Figure 2: Transfer Characteristics

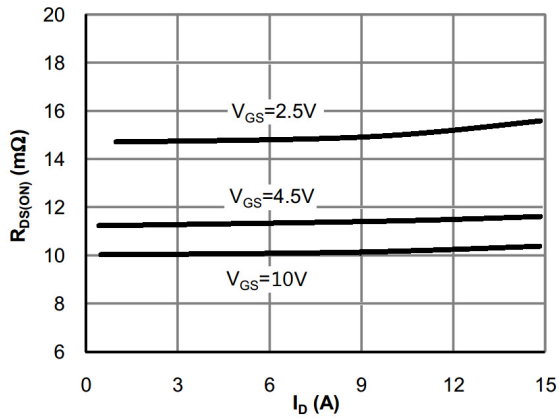


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

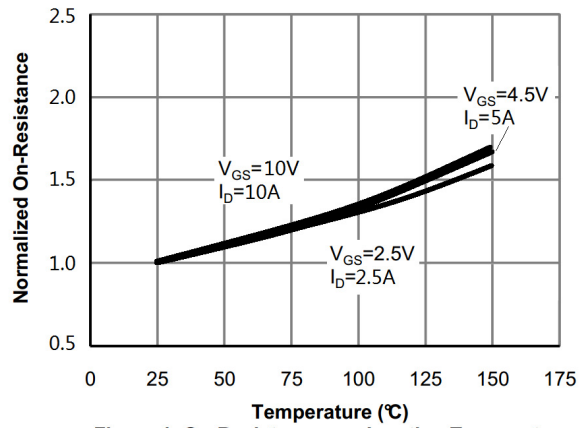


Figure 4: On-Resistance vs. Junction Temperature

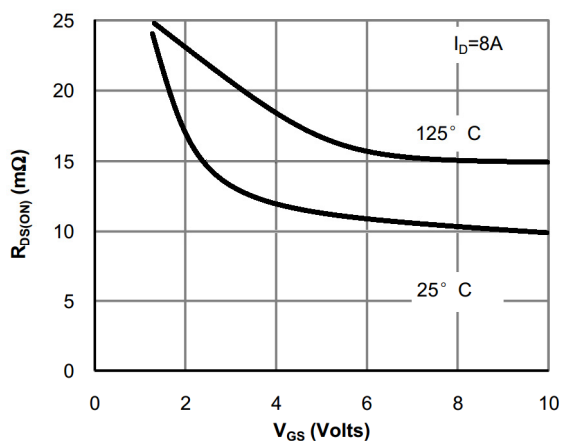


Figure 5: On-Resistance vs. Gate-Source Voltage

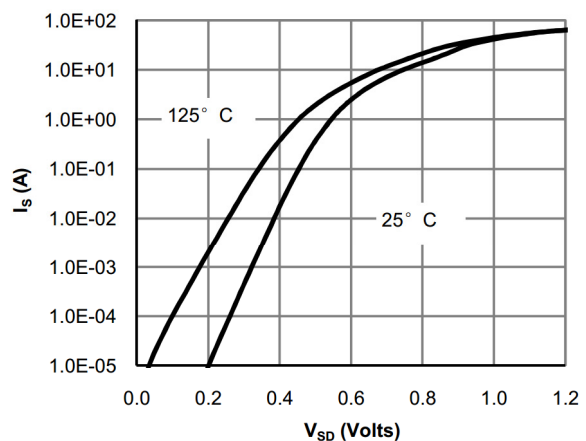


Figure 6: Body-Diode Characteristics

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

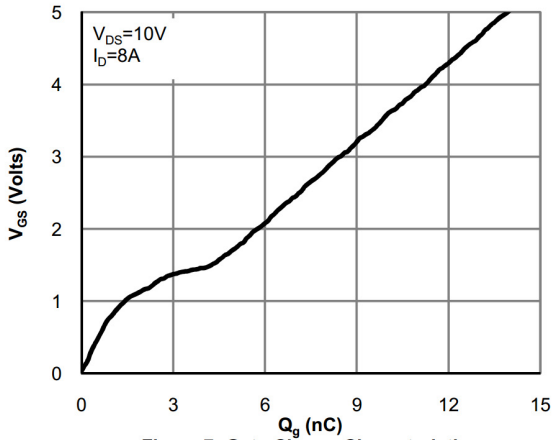


Figure 7: Gate-Charge Characteristics

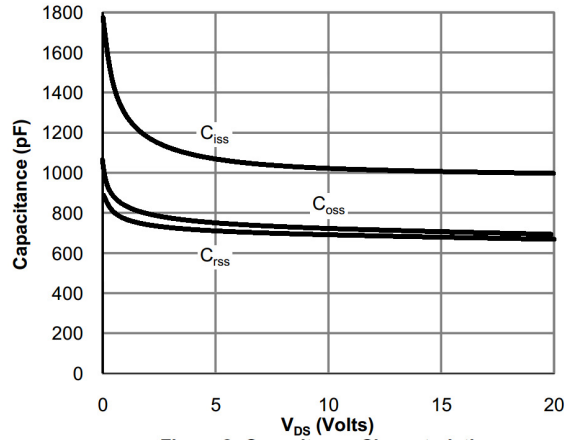


Figure 8: Capacitance Characteristics

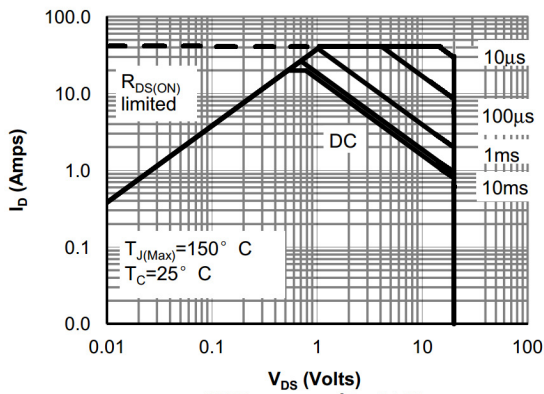


Figure 9: Maximum Forward Biased Safe Operating Area

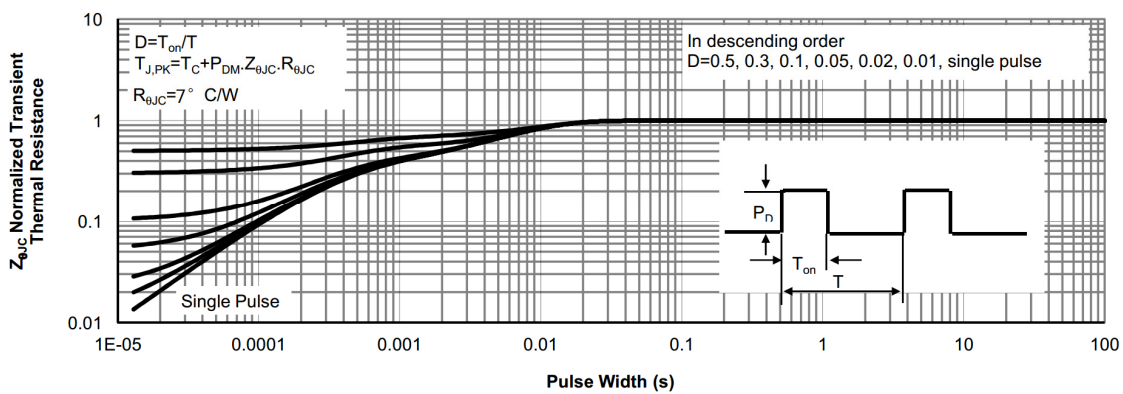


Figure 10: Normalized Maximum Transient Thermal Impedance

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	-20	-23		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V V _{GS} =0V			-1.0	μA
Gate-Body leakage current	I _{GSS}	V _{GS} =±12V V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-0.5	-0.7	-1.2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V I _D =-10A		14.5	20	mΩ
		V _{GS} =-4.5V I _D =-5A		16	25	mΩ
		V _{GS} =-2.5V I _D =-2.5A		19	30	mΩ
Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =-1.0A		-0.73	-1.2	V
Input Capacitance	C _{iss}	V _{DS} =-15V V _{GS} =0V f=1.0MHz		2500		pF
Output Capacitance	C _{oss}			210		pF
Reverse Transfer Capacitance	C _{rss}			190		pF
Gate resistance	R _g	V _{DS} =0V V _{GS} =0V f=1.0MHz		13		Ω
Total Gate Charge	Q _g	V _{GS} =-4.5V V _{DS} =-10V I _D =-8A		13.2		nC
Gate-Source Charge	Q _{gs}			2.0		nC
Gate-Drain Charge	Q _{gd}			3.8		nC
Turn-On Delay Time	t _{d(on)}	V _{DS} =-10 V V _{GS} =-4.5V R _L =0.75Ω R _{GEN} =3Ω		15		ns
Turn-On Rise Time	t _r			29		ns
Turn-Off Delay Time	t _{d(off)}			75		ns
Turn-Off Fall Time	t _f			42		ns

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

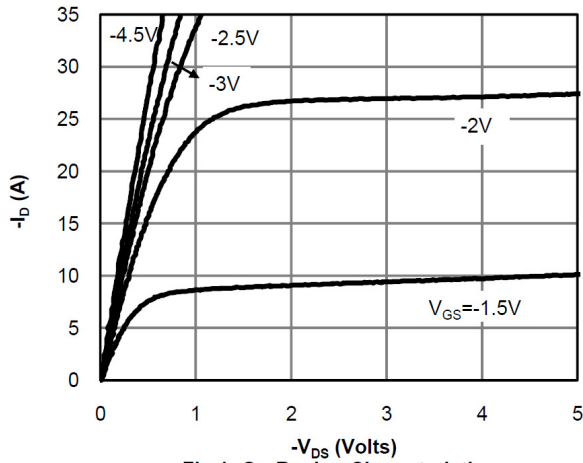


Fig 1: On-Region Characteristics

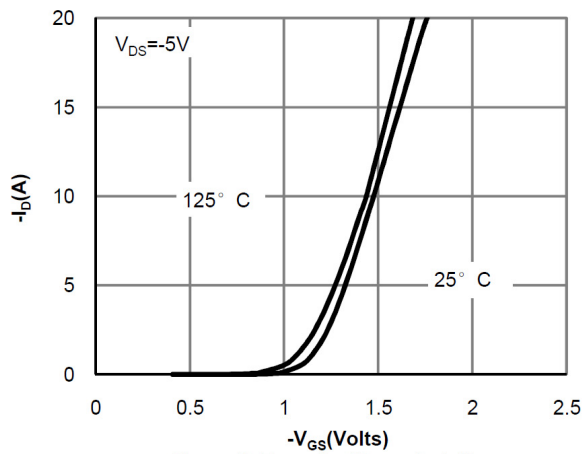


Figure 2: Transfer Characteristics

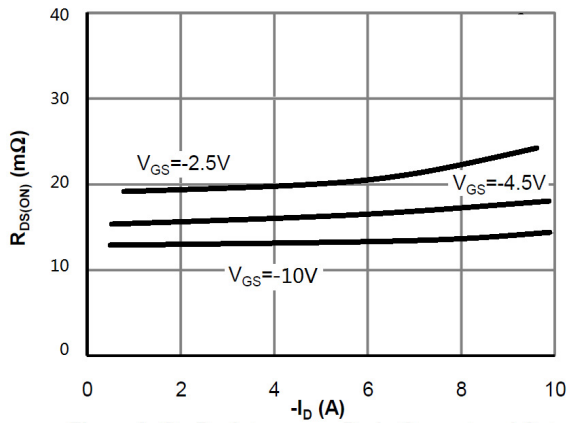


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

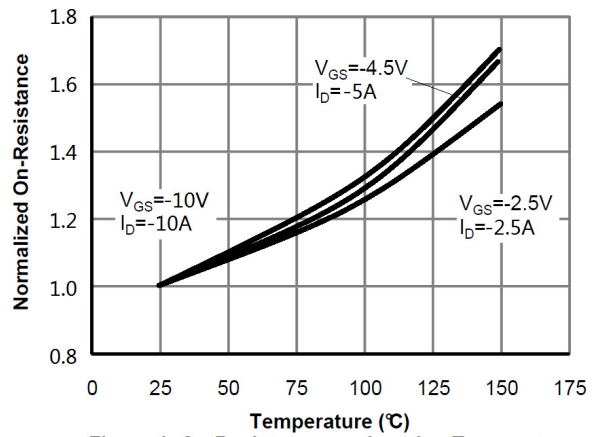


Figure 4: On-Resistance vs. Junction Temperature

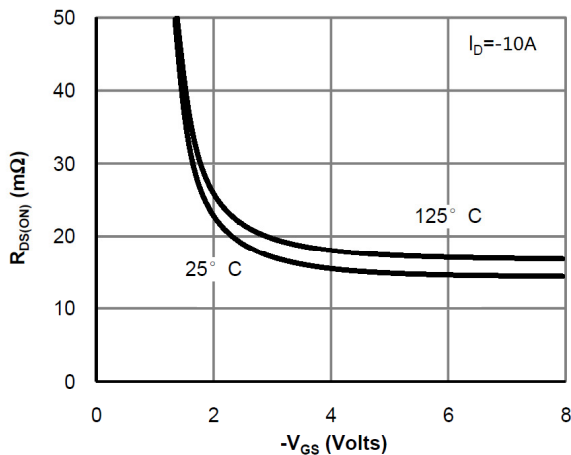


Figure 5: On-Resistance vs. Gate-Source Voltage

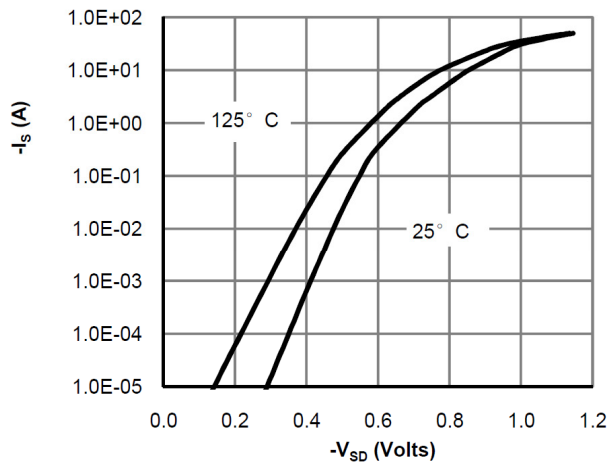


Figure 6: Body-Diode Characteristics

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

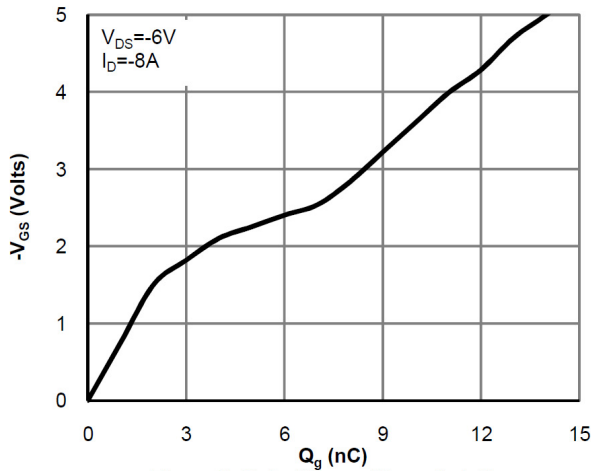


Figure 7: Gate-Charge Characteristics

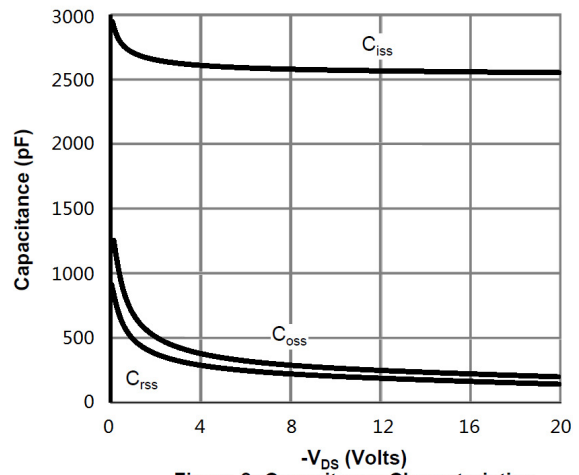


Figure 8: Capacitance Characteristics

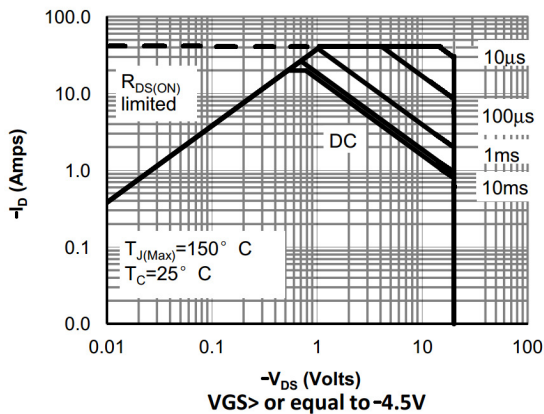


Figure 9: Maximum Forward Biased Safe Operating Area

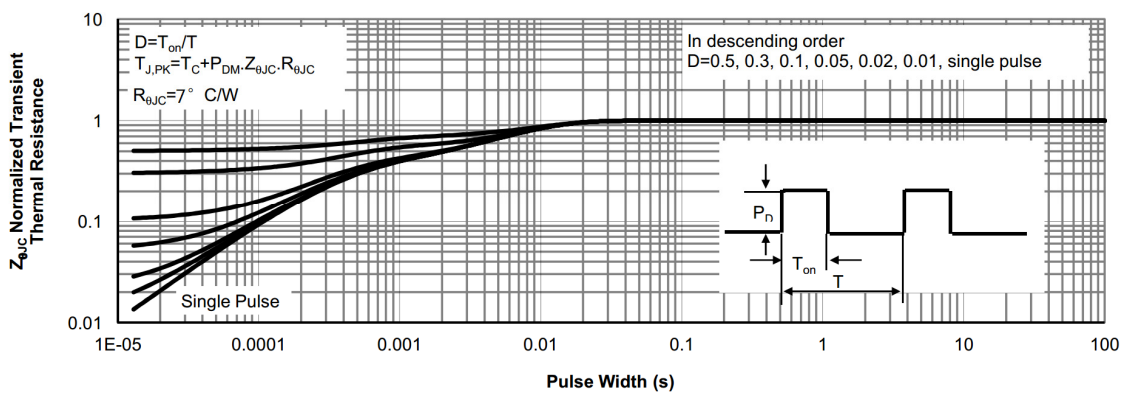
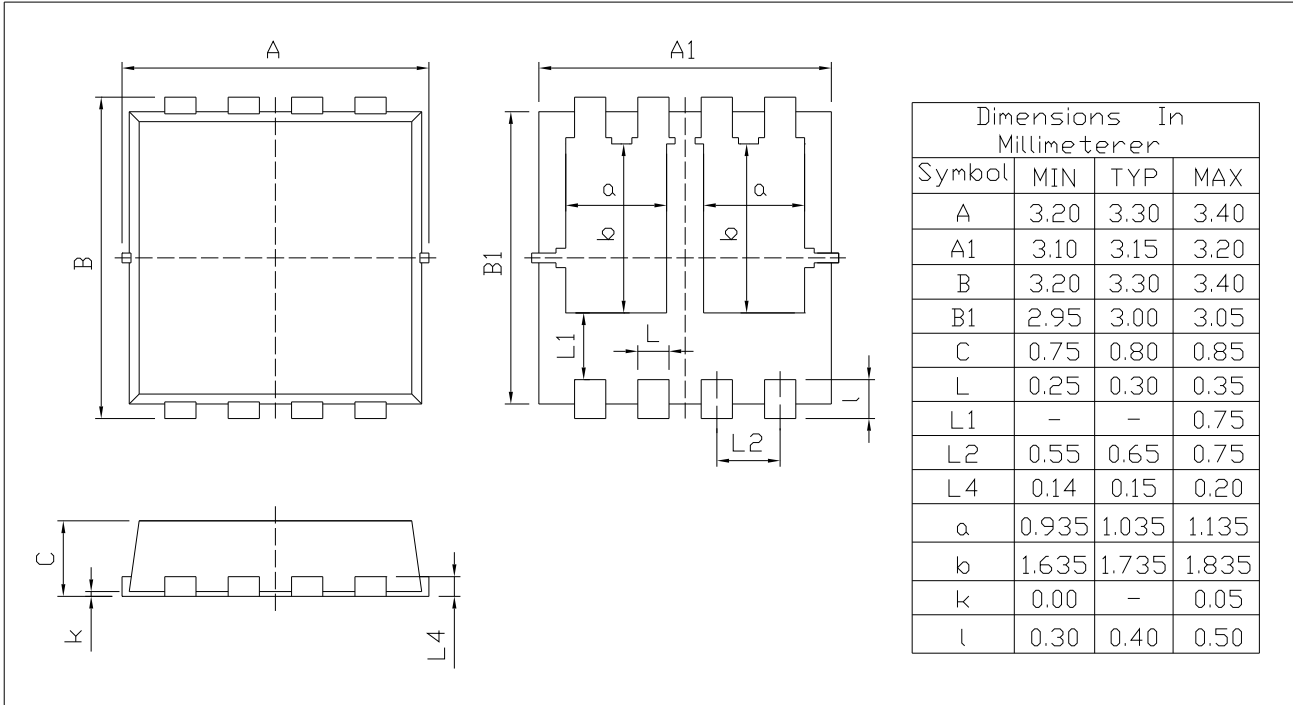


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

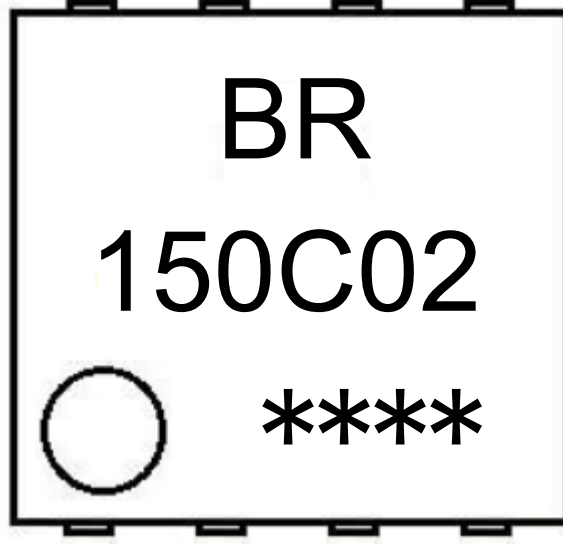
PDFN3X3-8L

Unit:mm



Rev.00 202011

印章说明 / Marking Instructions



说明：

BR： 为公司代码

150C02： 为型号代码

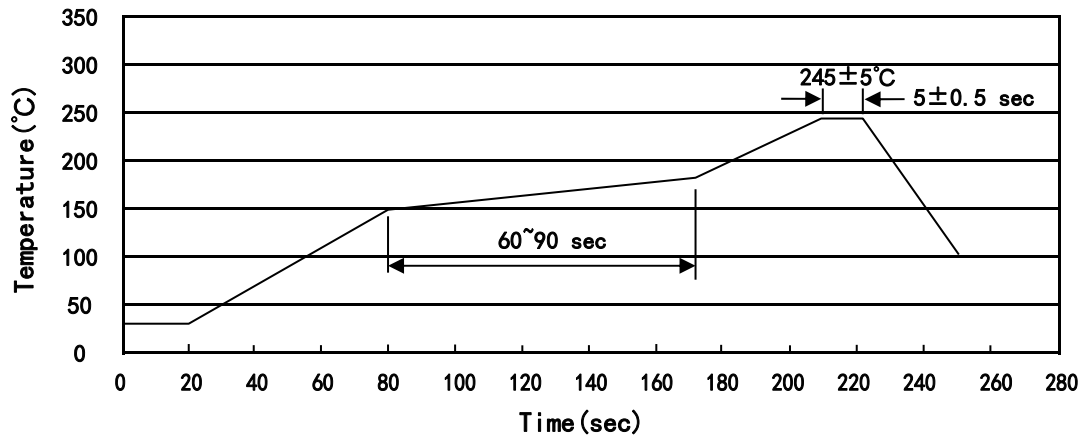
****： 为生产批号代码，随生产批号变化

Note:

BR: Company Code

150C02: 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°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
PDFN 3×3-8L	5,000	2	10,000	6	60,000	13" ×12	360×360×50	380×335×366

使用说明 / Notices