

**描述 / Descriptions**

SOP-8 塑封封装互补增强模式 MOS 场效应管。

Complementary Enhancement MOSFET in a SOP-8 Plastic Package.

**特征 / Features**

N-channel	P-channel
$V_{DS}(V)=30V$	$V_{DS}(V)=-30V$
$I_D=8A$	$I_D=-8A$
$R_{DS(ON)}<20m\ \Omega\ (V_{GS}=10V)$	$R_{DS(ON)}<20m\ \Omega\ (V_{GS}=-10V)$
$R_{DS(ON)}<28m\ \Omega\ (V_{GS}=4.5V)$	$R_{DS(ON)}<28m\ \Omega\ (V_{GS}=-4.5V)$

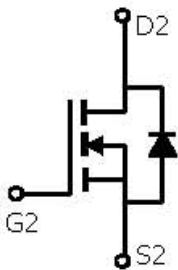
无卤产品。HF Product.

**用途 / Applications**

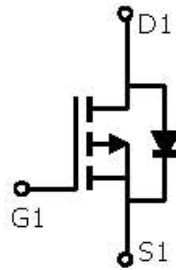
用于高功率 DC/DC 转换和功率开关。适用于作负载开关或脉宽调制应用。

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies. And suitable for use as a load switch or in PWM applications.

**内部等效电路 / Equivalent Circuit**

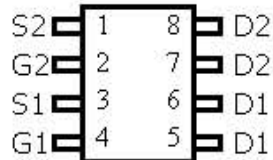
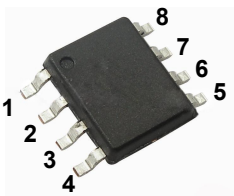


**n-channel**



**p-channel**

**引脚排列 / Pinning**



**印章代码 / Marking**

见印章说明。See Marking Instructions.

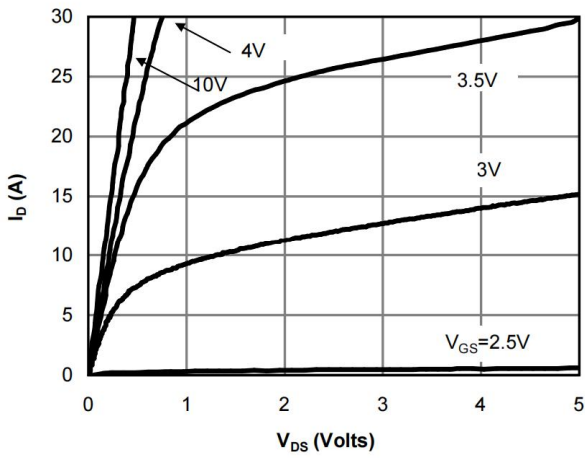
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating		单位 Unit
		N-channel	P-channel	
Drain-Source Voltage	$V_{DSS}$	±30		V
Gate-Source Voltage	$V_{GSS}$	±20		V
Continuous Drain Current	$I_D (T_A=25^\circ\text{C})$	8	-8	A
Pulsed Drain Current	$I_{DM}$	±40		A
Power Dissipation	$P_D (T_A=25^\circ\text{C})$	2		W
Maximum Junction-to-Ambient	$R_{\theta JA}$	$t \leq 10\text{s}$	62.5	$^\circ\text{C/W}$
		Steady-State	90	$^\circ\text{C/W}$
Maximum Junction-to-Lead	$R_{\theta JL}$	Steady-State	40	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150		$^\circ\text{C}$

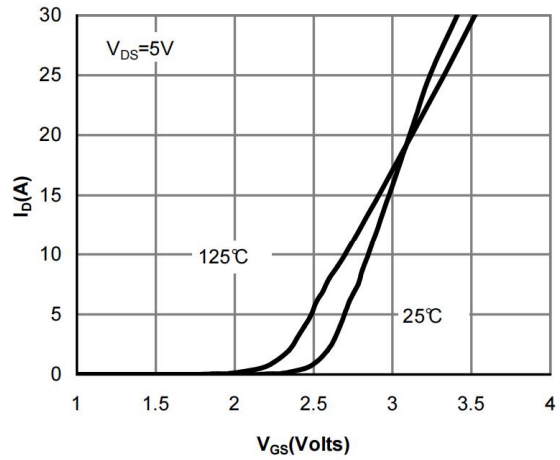
## N-沟道电性能参数/N-CHANNEL Electrical Characteristics(Ta=25°C)

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	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	30	32		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ $V_{GS}=0V$			1.0	$\mu A$
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	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=8.0A$		18	20	m $\Omega$
		$V_{GS}=4.5V$ $I_D=5.0A$		25.5	28	m $\Omega$
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=1.0A$			1.0	V
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		700		pF
Output Capacitance	$C_{oss}$			200		pF
Reverse Transfer Capacitance	$C_{rss}$			130		pF
Gate resistance	$R_g$	$V_{DS}=0V$ $f=1.0MHz$ $V_{GS}=0V$		5		$\Omega$
Total Gate Charge(10V)	$Q_g$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=8A$		15		nC
Total Gate Charge(4.5V)				7.5		nC
Gate-Source Charge	$Q_{gs}$			2.5		nC
Gate-Drain Charge	$Q_{gd}$			3		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=1.8\Omega$ $R_{GEN}=3\Omega$		5		ns
Turn-On Rise Time	$t_r$			3.5		ns
Turn-Off Delay Time	$t_{d(off)}$			19		ns
Turn-Off Fall Time	$t_f$			3.5		ns

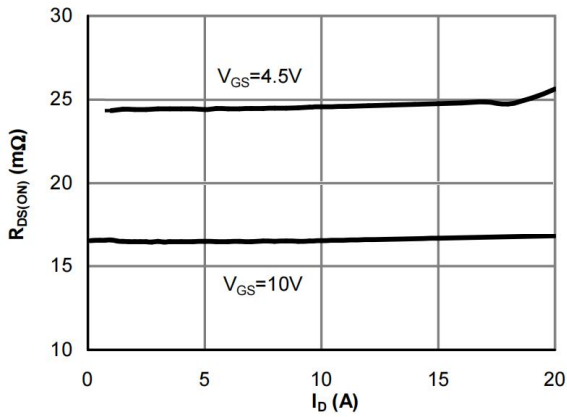
**N-沟道电参数曲线图 / N-CHANNEL Electrical Characteristic Curve**



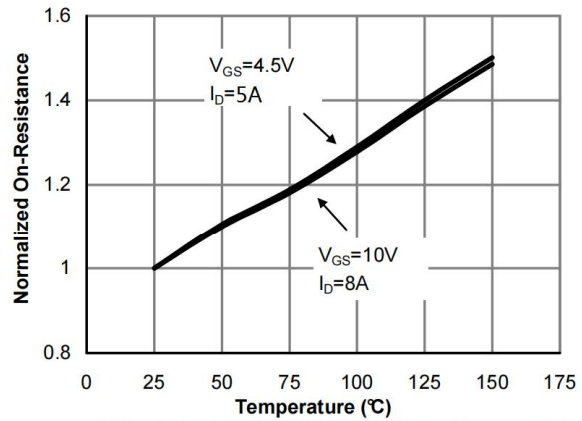
**Fig 1: On-Region Characteristics**



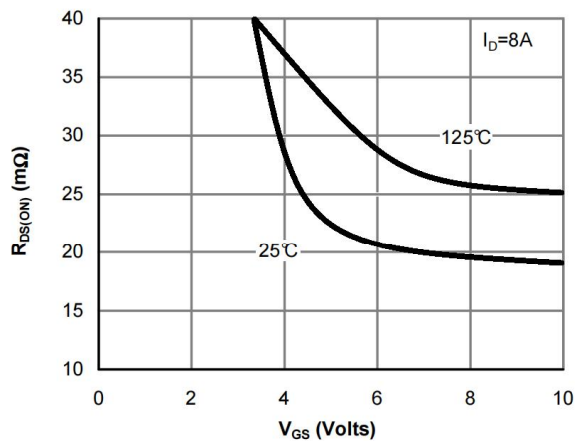
**Figure 2: Transfer Characteristics**



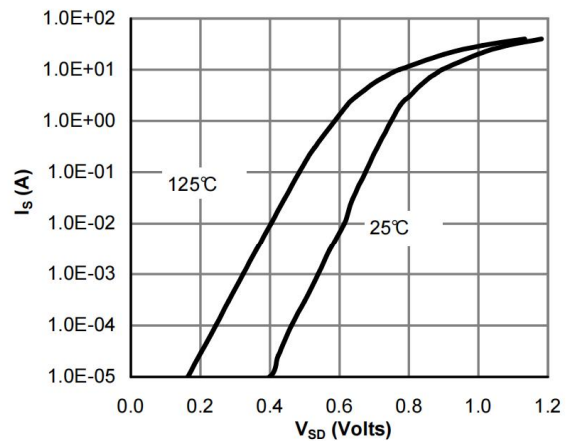
**Figure 3: On-Resistance vs. Drain Current and Gate Voltage**



**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**

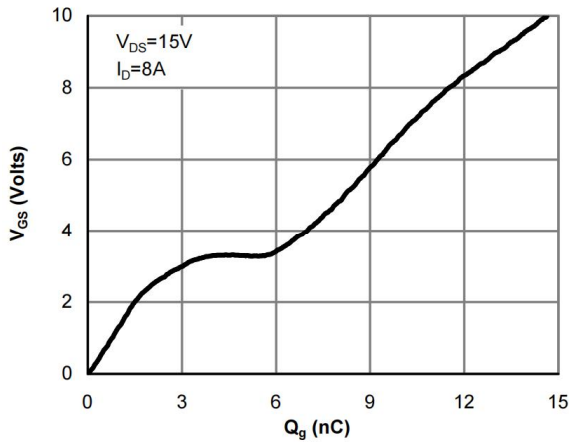


Figure 7: Gate-Charge Characteristics

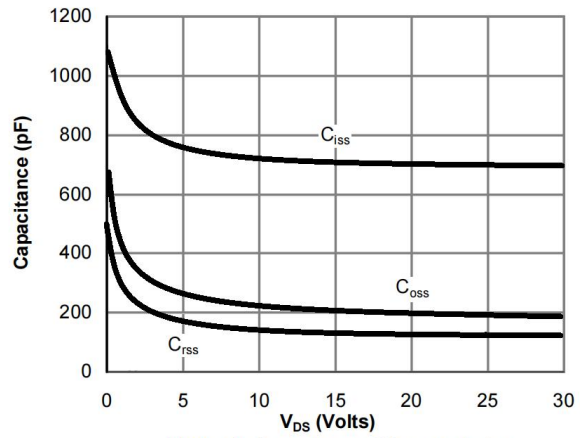


Figure 8: Capacitance Characteristics

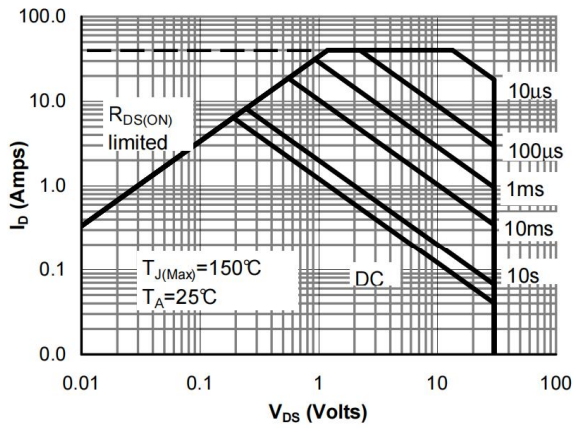


Figure 9: Maximum Forward Biased Safe Operating Area

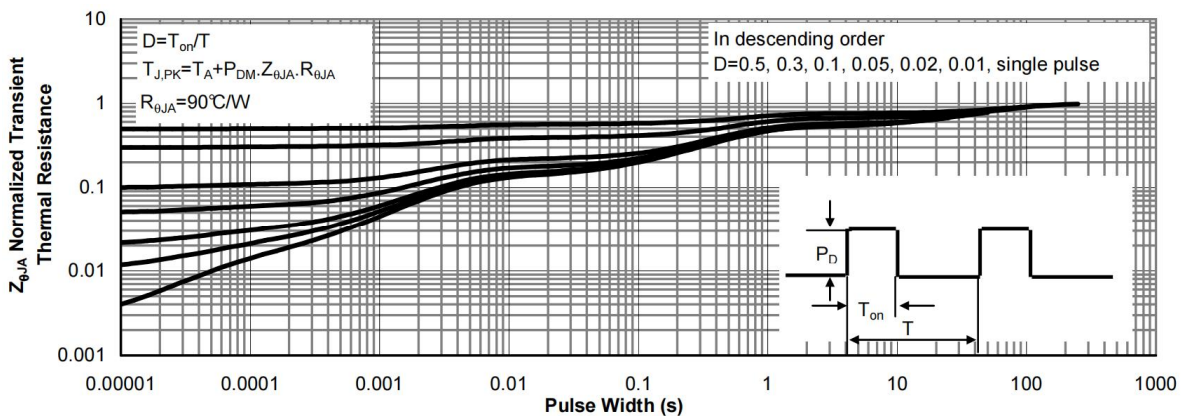


Figure 10: Normalized Maximum Transient Thermal Impedance

## 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 <sub>DSS</sub>	V <sub>GS</sub> =0V I <sub>D</sub> =-250μA	-30	-33		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-24V V <sub>GS</sub> =0V			-1.0	μA
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250μA	-1.0	-1.5	-2.5	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V I <sub>D</sub> =-8.0A		13	20	mΩ
		V <sub>GS</sub> =-4.5V I <sub>D</sub> =-5.0A		18	28	mΩ
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =-1.0A			-1.0	V
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-25V V <sub>GS</sub> =0V f=1.0MHz		2300		pF
Output Capacitance	C <sub>oss</sub>			370		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			350		pF
Gate resistance	R <sub>g</sub>	V <sub>DS</sub> =0V V <sub>GS</sub> =0V f=1.0MHz		5		Ω
Total Gate Charge(10V)	Q <sub>g</sub>	V <sub>GS</sub> =-10V V <sub>DS</sub> =-15V I <sub>D</sub> =-8A		19		nC
Total Gate Charge(4.5V)				9.6		nC
Gate-Source Charge	Q <sub>gs</sub>			3.6		nC
Gate-Drain Charge	Q <sub>gd</sub>			4.6		nC
Turn-On Delay Time	t <sub>d(on)</sub>		V <sub>DS</sub> =-15V V <sub>GS</sub> =-10V R <sub>L</sub> =2.2Ω R <sub>GEN</sub> =3Ω		10	
Turn-On Rise Time	t <sub>r</sub>			5.5		ns
Turn-Off Delay Time	t <sub>d(off)</sub>			26		ns
Turn-Off Fall Time	t <sub>f</sub>			9		ns

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

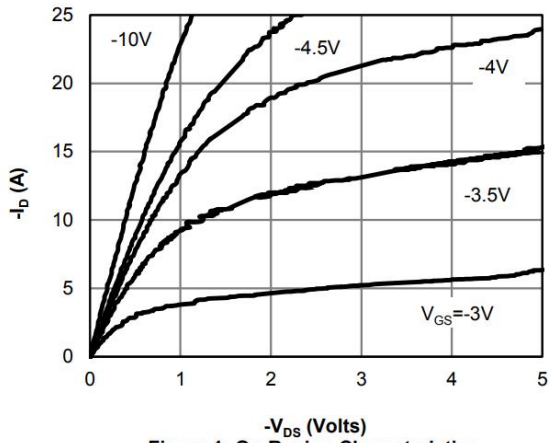


Figure 1: On-Region Characteristics

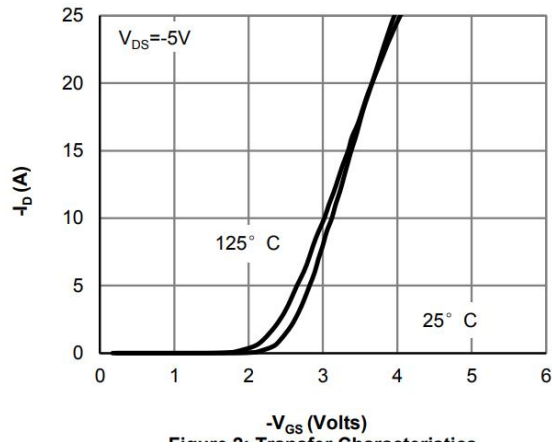


Figure 2: Transfer Characteristics

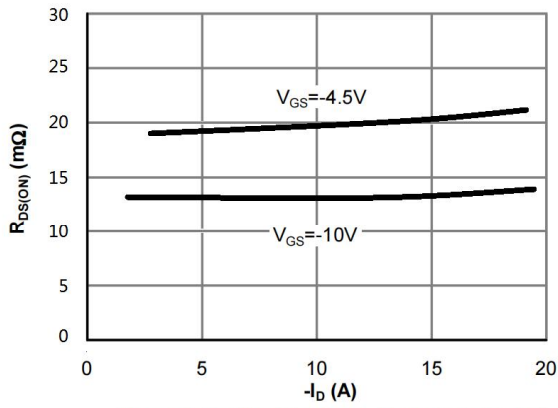


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

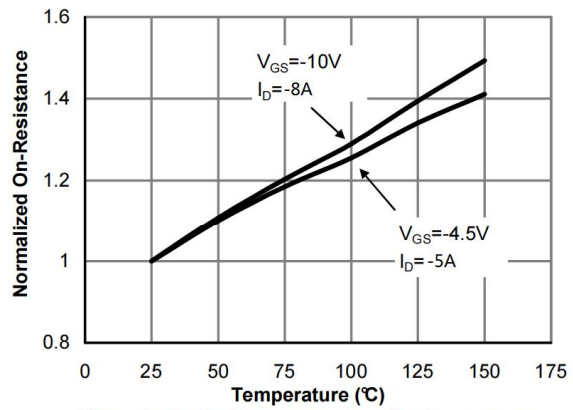


Figure 4: On-Resistance vs. Junction Temperature

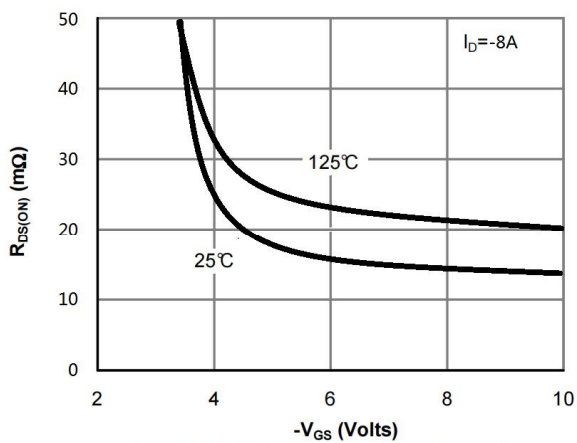


Figure 5: On-Resistance vs. Gate-Source Voltage

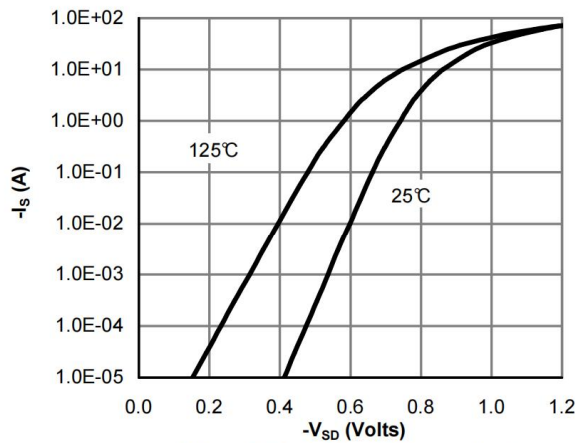


Figure 6: Body-Diode Characteristics

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

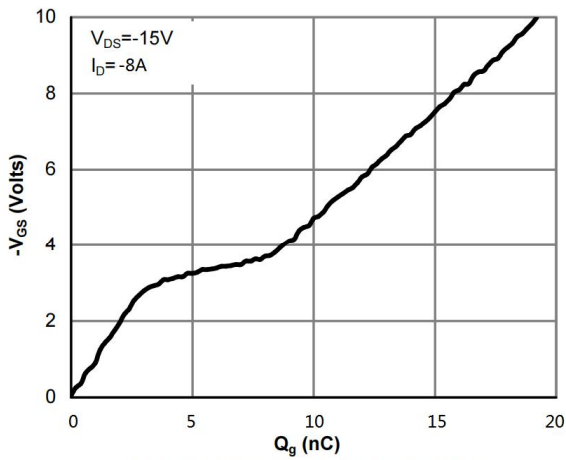


Figure 7: Gate-Charge Characteristics

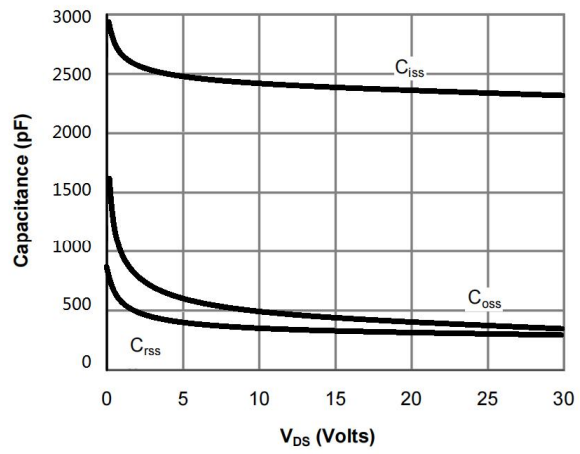


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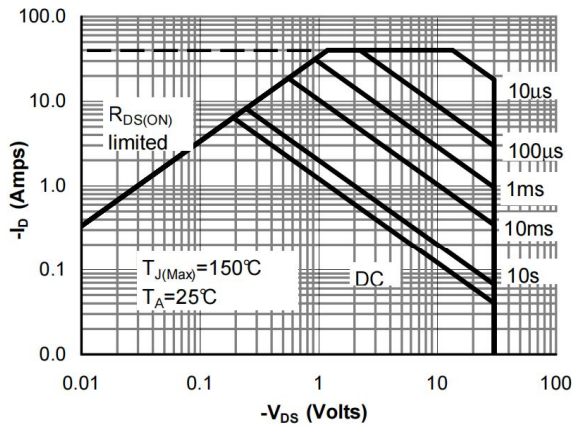


Figure 9: Maximum Forward Biased Safe Operating Area

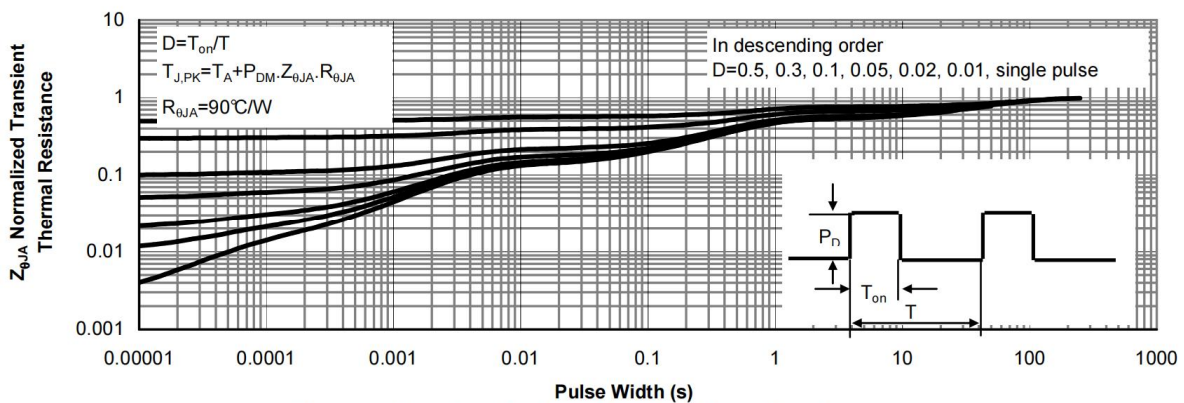


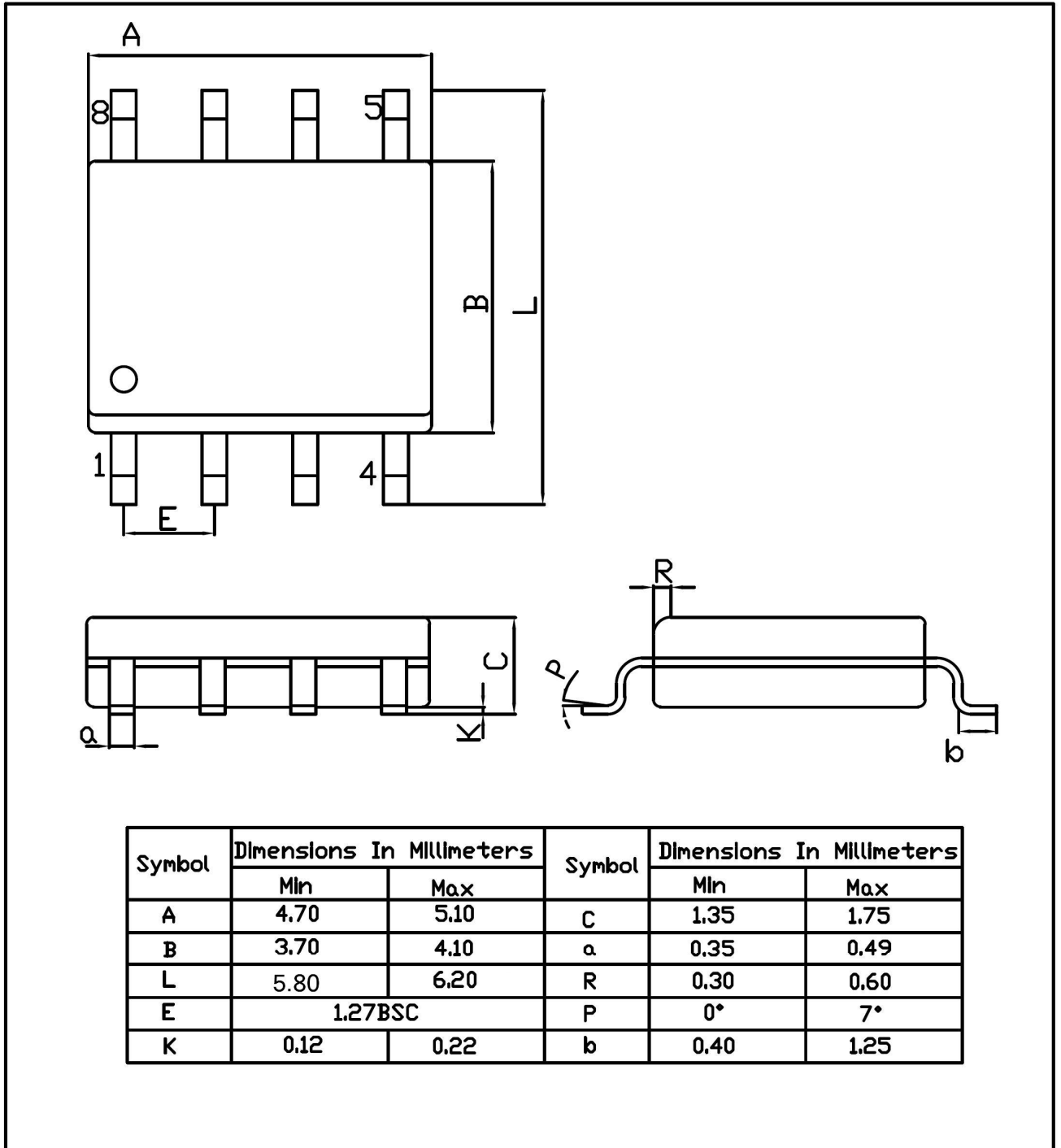
Figure 10: Normalized Maximum Transient Thermal Impedance



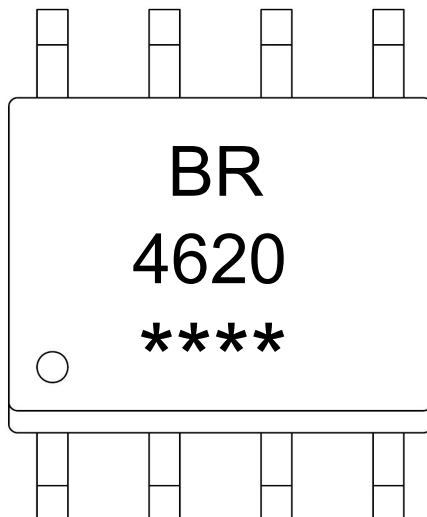
外形尺寸图 / Package Dimensions

SOP-8

Unit:mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

4620： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化

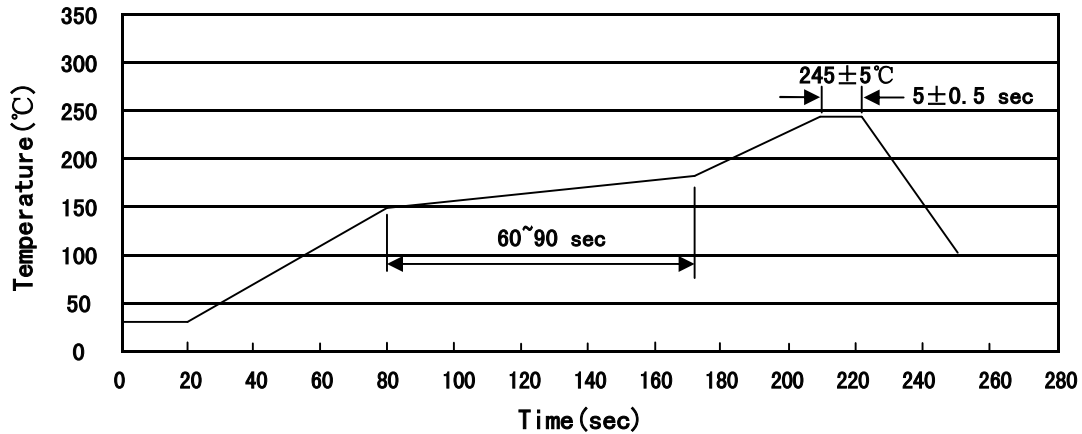
Note:

BR: Company Code

4620: 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 <sup>3</sup> )		
	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**