

描述 / Descriptions

PDFN5×6A 塑封封装互补增强模式 MOS 场效应管。

Complementary Enhancement MOSFET in a PDFN5×6A Plastic Package.

特征 / Features

N-channel

$V_{DS}(V)=30V$

$I_D=39.5A$

$R_{DS(ON)}<10m\Omega(V_{GS}=10V)$

$R_{DS(ON)}<15m\Omega(V_{GS}=4.5V)$

无卤产品。HF Product.

P-channel

$V_{DS}(V)=-30V$

$I_D=-39A$

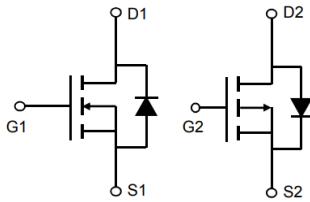
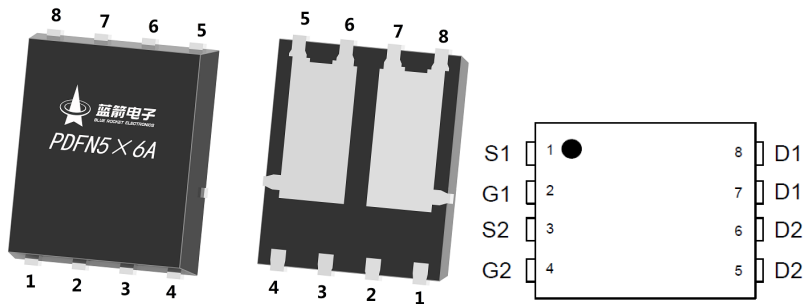
$R_{DS(ON)}<12m\Omega(V_{GS}=-10V)$

$R_{DS(ON)}<20m\Omega(V_{GS}=-4.5V)$

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**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($T_a=25^{\circ}\text{C}$)

参数 Parameter	符号 Symbol	数值 Rating		单位 Unit
		N-channe	P-channell	
Drain-Source Voltage	V _{DSS}	±30		V
Gate-Source Voltage	V _{GSS}	±20		V
Continuous Drain Current	I _D (T _C =25℃)	39.5	-39	A
Pulsed Drain Current	I _{DM}	125	-125	A
Avalanche Current(L=0.5mH)	I _{AS}	17	13	A
Avalanche energy(L=0.5mH)	E _{AS}	115	67	mJ
Power Dissipation	P _D (T _C =25℃)	25	25	W
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150		℃
Maximum Junction-to-Ambient	R _{ΘJA}	65		℃/W
Maximum Junction-to-Case	R _{ΘJC}	5		

N-沟道电性能参数/N-CHANNEL 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}	$V_{GS}=0V$ $I_D=250\mu A$	30	35		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			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	10	m Ω
		$V_{GS}=4.5V$ $I_D=5A$		12	15	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1.0A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		930		pF
Output Capacitance	C_{oss}			100		pF
Reverse Transfer Capacitance	C_{rss}			70		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		2.8		Ω
Total Gate Charge(10V)	Q_g	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=12A$		14		nC
Total Gate Charge(4.5V)				6.5		nC
Gate-Source Charge	Q_{gs}			2.3		nC
Gate-Drain Charge	Q_{gd}			3		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=1.25\Omega$ $R_{GEN}=3\Omega$		4.5		ns
Turn-On Rise Time	t_r			10		ns
Turn-Off Delay Time	$t_{d(off)}$			15		ns
Turn-Off Fall Time	t_f			6		ns

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

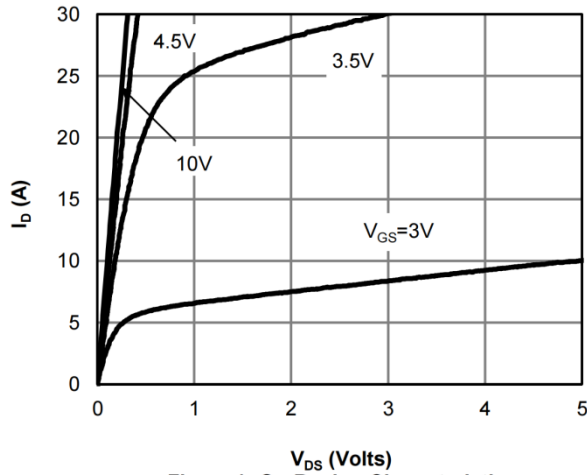


Figure 1: On-Region Characteristics

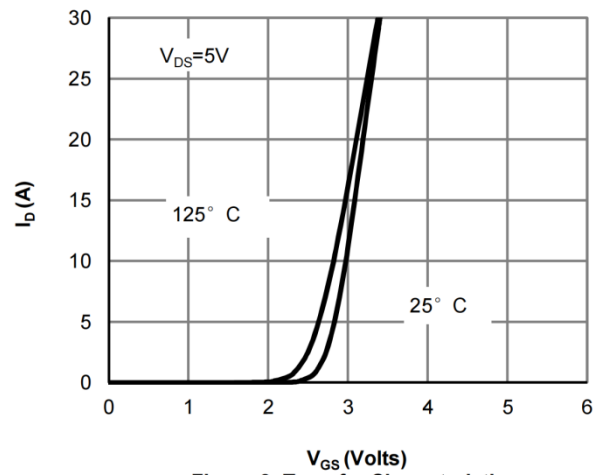


Figure 2: Transfer Characteristics

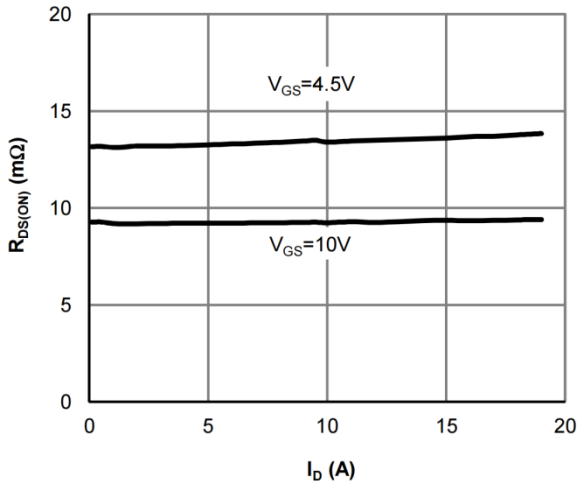


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

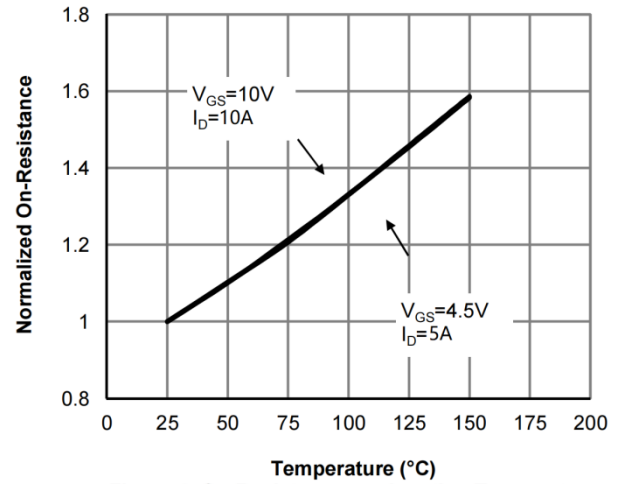


Figure 4: On-Resistance vs. Junction Temperature

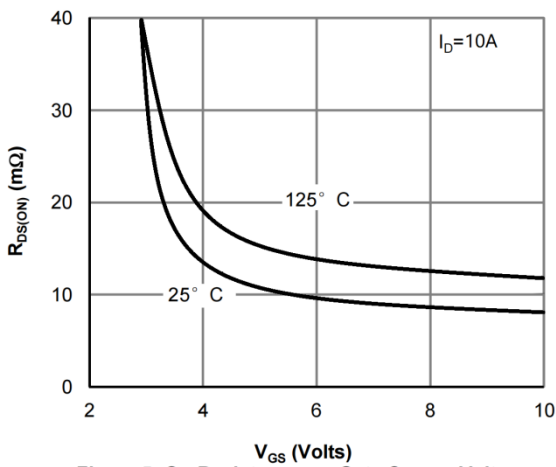


Figure 5: On-Resistance vs. Gate-Source Voltage

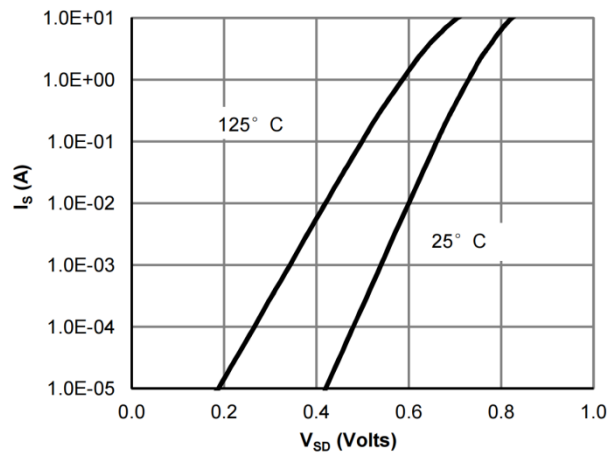


Figure 6: Body-Diode Characteristics

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

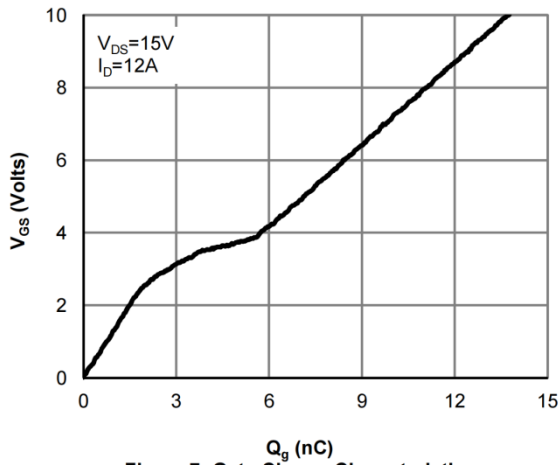


Figure 7: Gate-Charge Characteristics

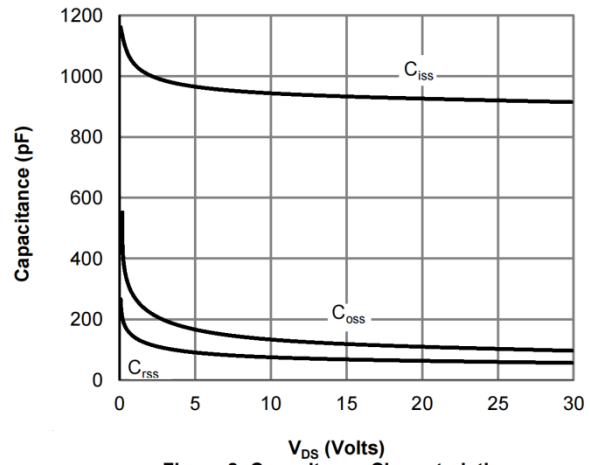


Figure 8: Capacitance Characteristics

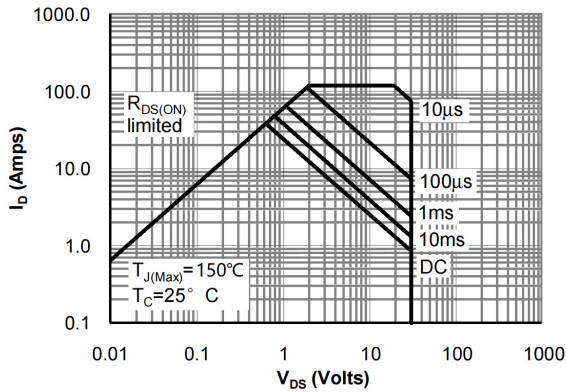


Figure 9: Maximum Forward Biased Safe Operating Area

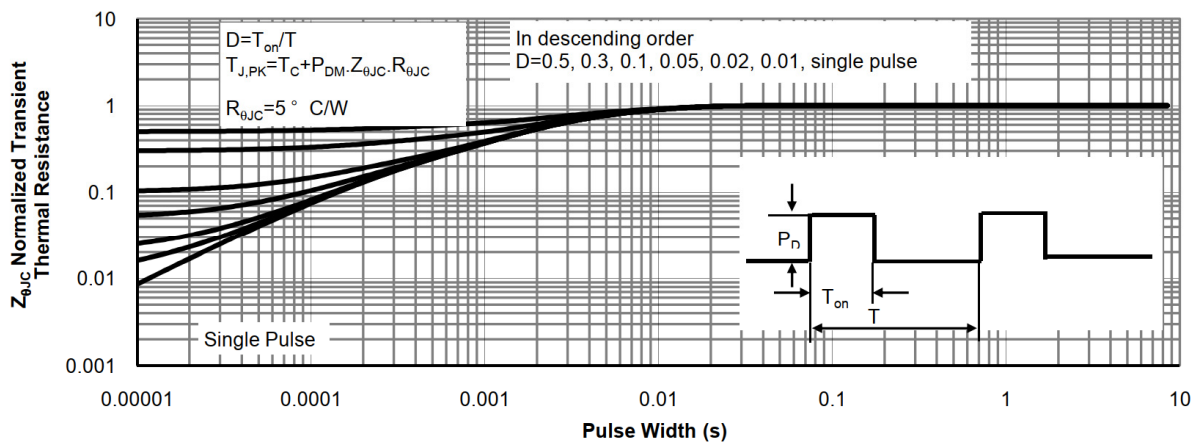


Figure 10: Normalized Maximum Transient Thermal Impedance

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

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	-30	-37		V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V 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		10	12	mΩ
		V _{GS} =-4.5V I _D =-5A		16	20	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		3350		pF
Output Capacitance	C _{oss}			2400		pF
Reverse Transfer Capacitance	C _{rss}			1050		pF
Gate resistance	R _g	V _{DS} =0V V _{GS} =0V f=1.0MHz		6.8		Ω
Total Gate Charge(10V)	Q _g	V _{GS} =-10V V _{DS} =-15V I _D =-16A		36		nC
Total Gate Charge(4.5V)				16		nC
Gate-Source Charge	Q _{gs}			5.5		nC
Gate-Drain Charge	Q _{gd}			9		nC
Turn-On Delay Time	t _{d(on)}	V _{DS} =-15 V V _{GS} =-10V R _L =0.9Ω R _{GEN} =3Ω		11		ns
Turn-On Rise Time	t _r			7.4		ns
Turn-Off Delay Time	t _{d(off)}			44		ns
Turn-Off Fall Time	t _f			18		ns

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

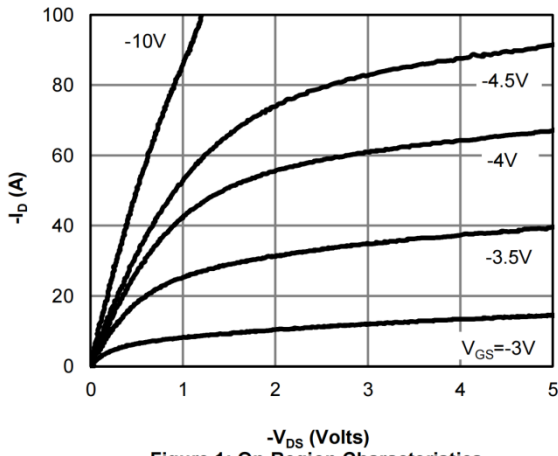


Figure 1: On-Region Characteristics

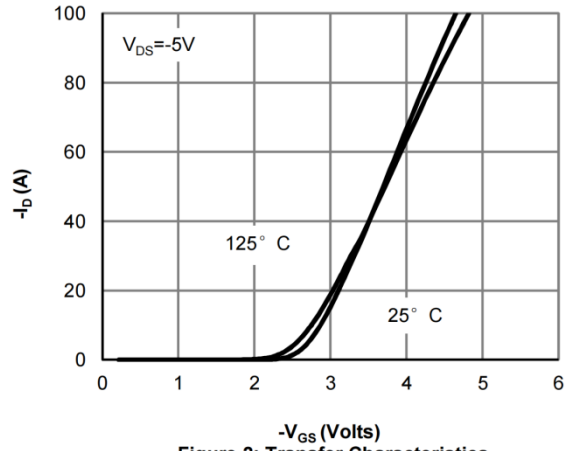


Figure 2: Transfer Characteristics

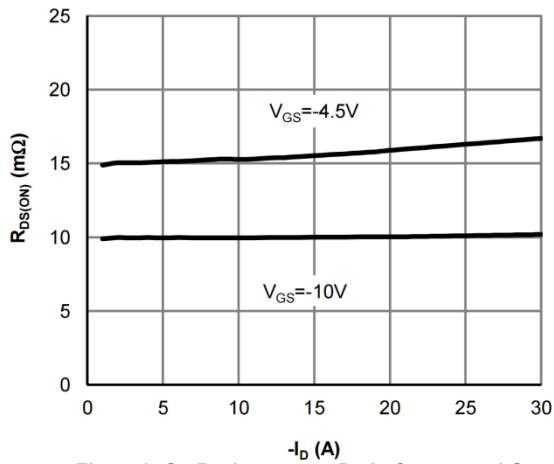


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

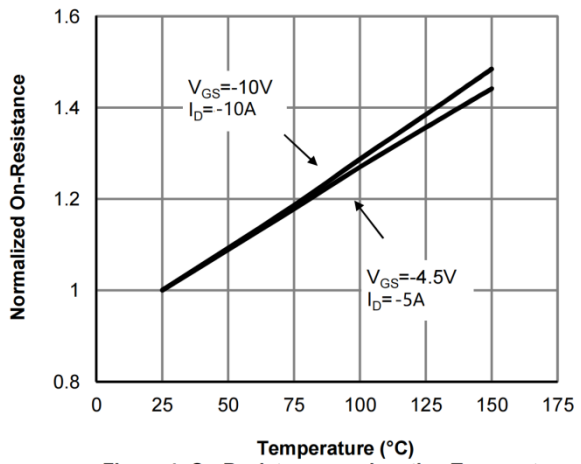


Figure 4: On-Resistance vs. Junction Temperature

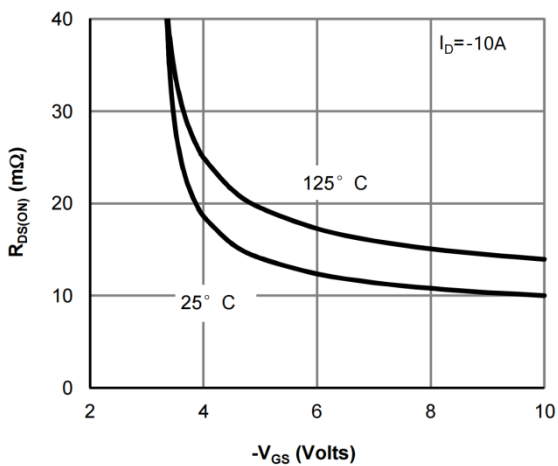


Figure 5: On-Resistance vs. Gate-Source Voltage

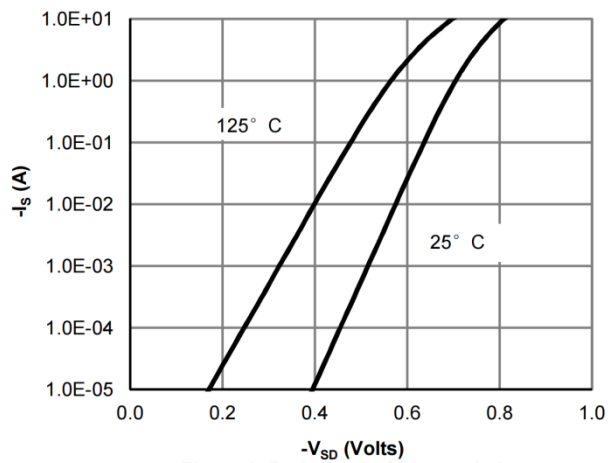
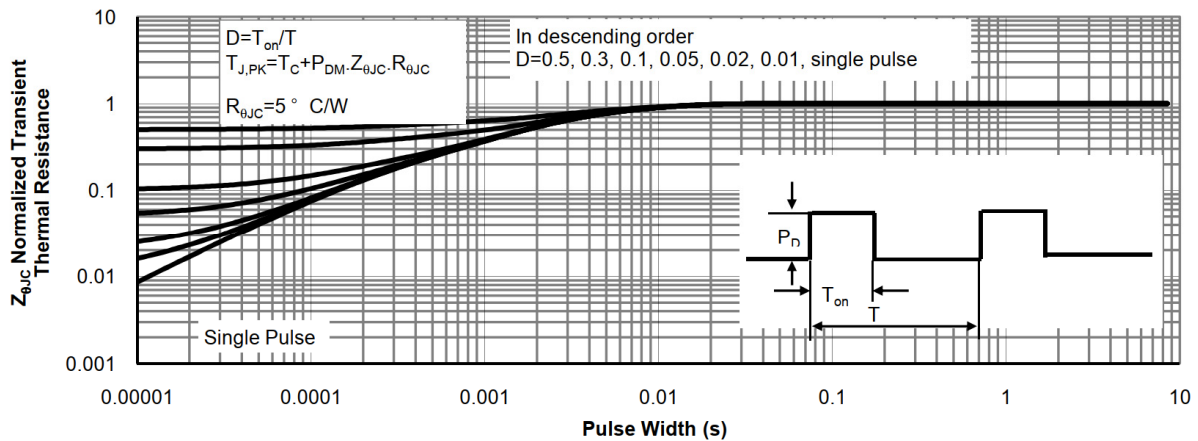
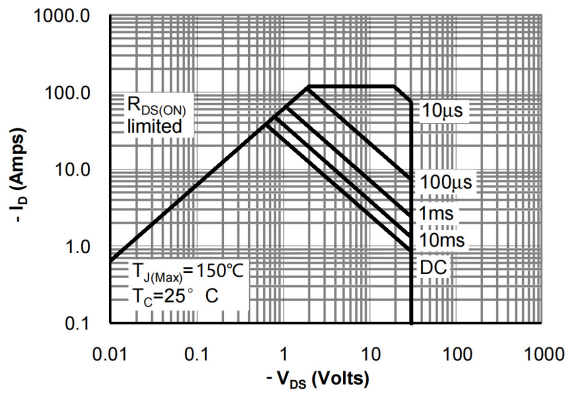
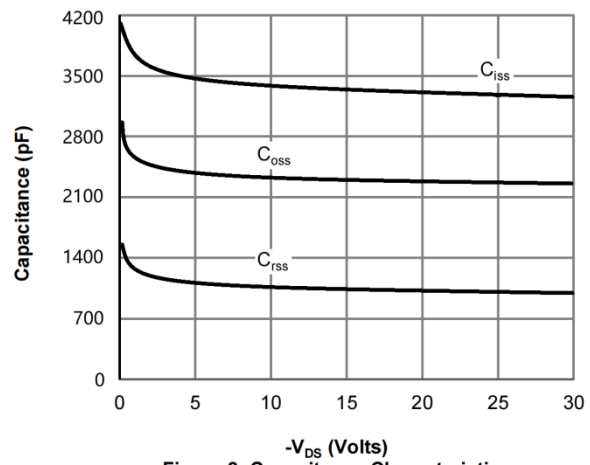
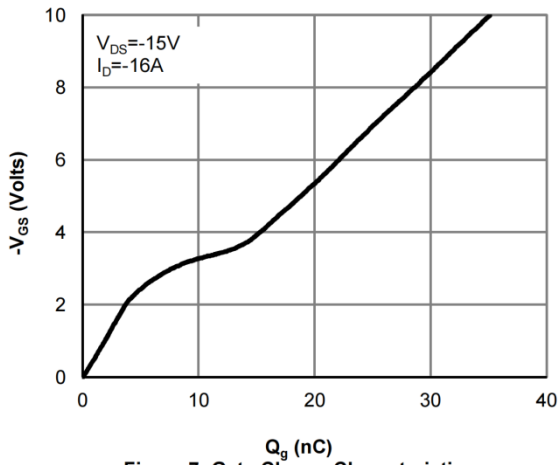


Figure 6: Body-Diode Characteristics

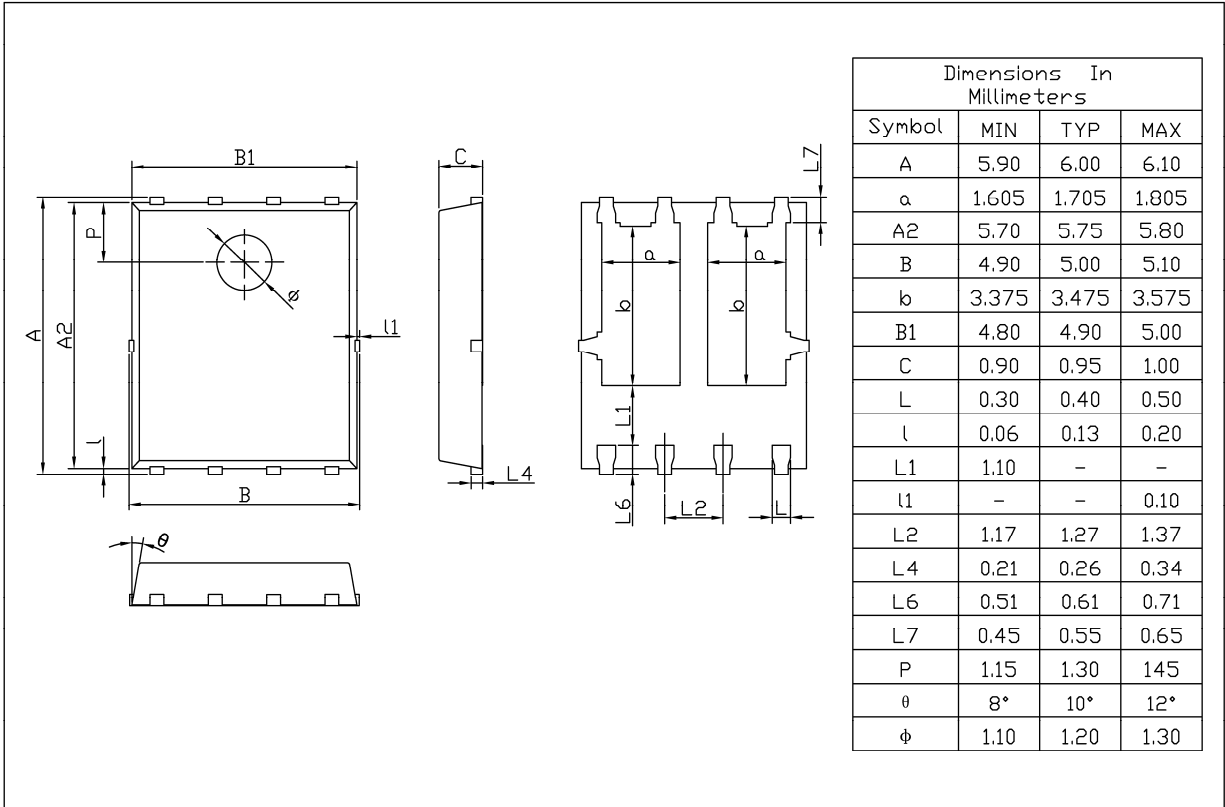
P-沟道电参数曲线图 / P-CHANNEL Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

PDFN5 X6A

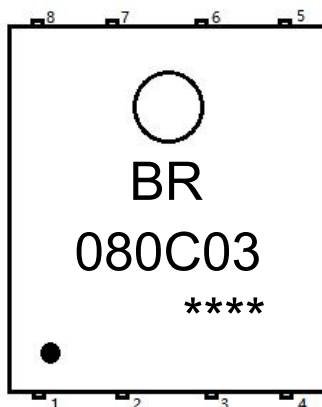
Unit:mm



Rev.01 202209



印章说明 / Marking Instructions



说明：

BR： 为公司代码

080C03： 为型号代码

****： 为生产批号代码，随生产批号变化

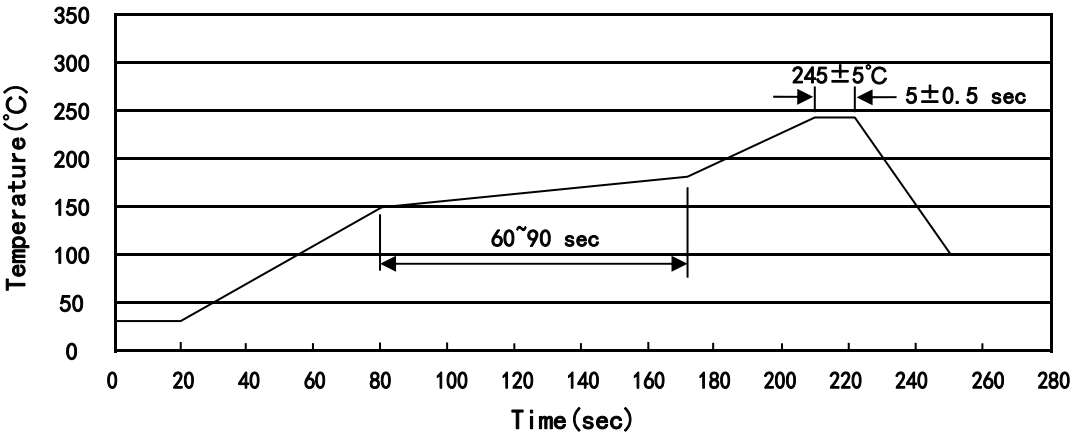
Note：

BR： Company Code

080C03： 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
PDFN5×6A	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

使用说明 / Notices