

/ Descriptions

PDFN5×6 N

N-Channel MOSFET in a PDFN5 × 6 Plastic Package.

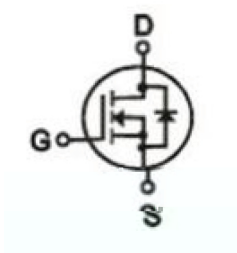
/ Features

Low $R_{DS(ON)}$ to minimize conductive loss; low Gate Charge for fast switching; Low Thermal resistance; HF Product.

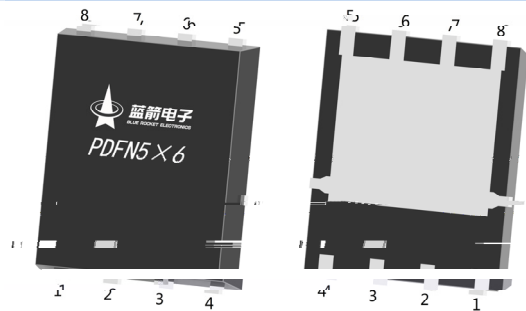
/ Applications

Battery Management.

/ Equivalent Circuit



/ Pinning



PIN1 2 3 S PIN4 G PIN5 6 7 8 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	40	V
Drain Current - Continuous	I_D	170	A
Drain Current – Pulsed	I_{DM}	340	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	65	W
Single Pulse Avalanche Energy($L=0.5\text{mH}$)	E_{AS}	358	mJ
Avalanche Current($L=0.5\text{mH}$)	I_{AS}	32	A
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - case	$R_{\theta JC}$	1.9	/ W
Thermal resistance, junction - ambient	$R_{\theta JA}$	55	/ W

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	40	46		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40\text{V}, V_{GS}=0\text{V}$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1	1.9	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=10\text{A}$		1.2	1.5	m Ω
		$V_{GS}=4.5\text{V}, I_D=10\text{A}$		2.0	2.5	
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		4200		pF
Output Capacitance	C_{oss}			2000		
Reverse Transfer Capacitance	C_{rss}			120		
Gate resistance	R_g	$V_{GS}=0\text{V}, V_{DS}=0\text{V}$ $f=1\text{MHz}$		1.0		
Total Gate Charge	$Q_g(10\text{V})$	$V_{GS}=10\text{V}, V_{DS}=20\text{V},$ $I_D=20\text{A}$		52		nC
Total Gate Charge	$Q_g(4.5\text{V})$			21		
Gate Source Charge	Q_{gs}			12		
Gate Drain Charge	Q_{gd}			5		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10\text{V}, V_{DS}=20\text{V},$ $R_L=1\Omega, R_{GEN}=3\Omega$		15		ns
Turn-On Rise Time	t_r			5.8		
Turn-Off Delay Time	$t_{d(off)}$			62		
Turn-Off Fall Time	t_f			10		

/ Electrical Characteristic Curve

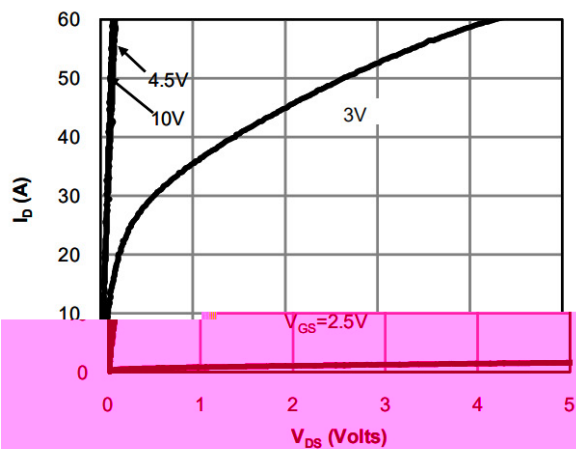


Figure 1: On-Resistance Characteristics

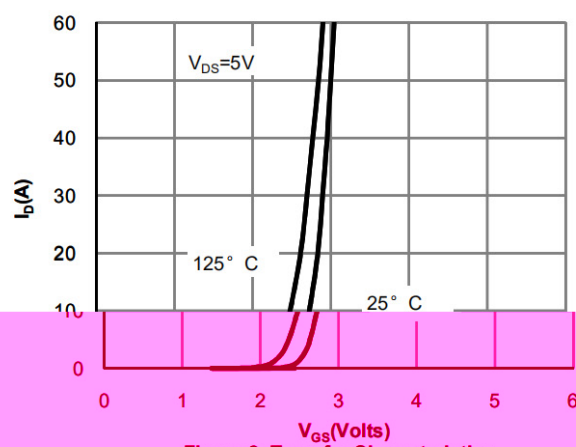


Figure 2: Transfer Characteristics

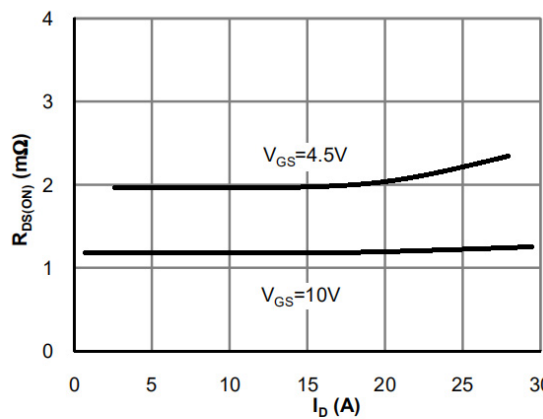


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

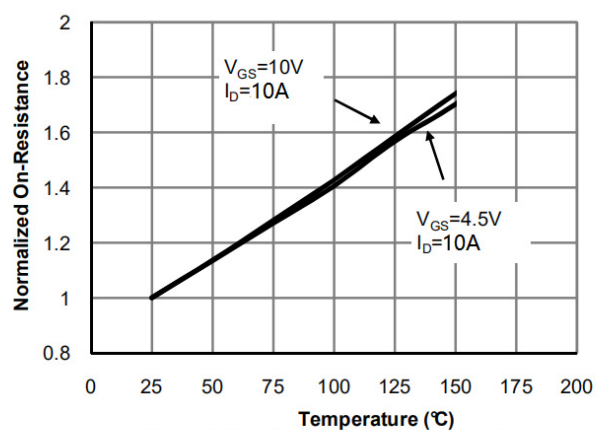


Figure 4: On-Resistance vs. Junction Temperature

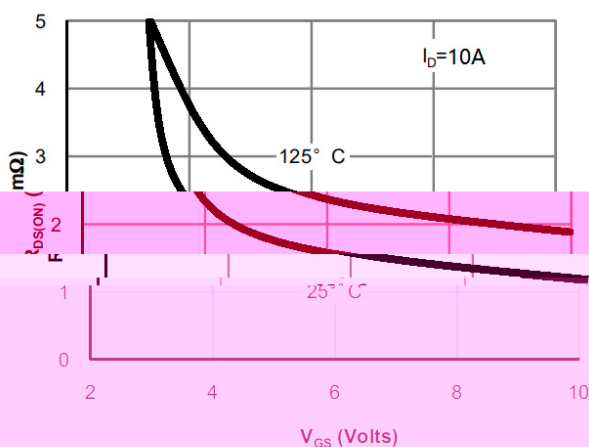


Figure 5: On-Resistance vs. Gate-Source Voltage

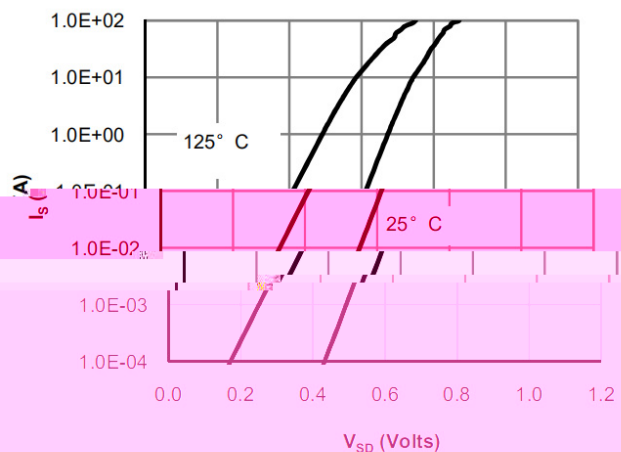


Figure 6: Body-Diode Characteristics



Electrical Characteristic Curve

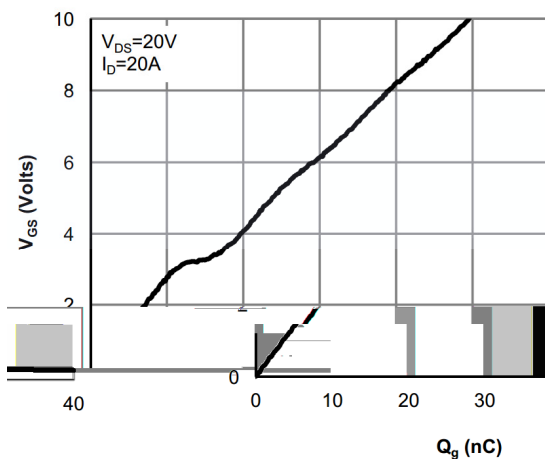


Figure 7: Gate-Charge Characteristics

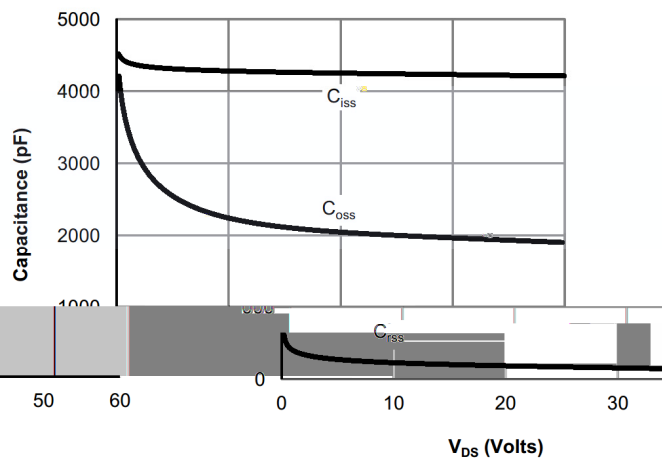


Figure 8: Capacitance Characteristics

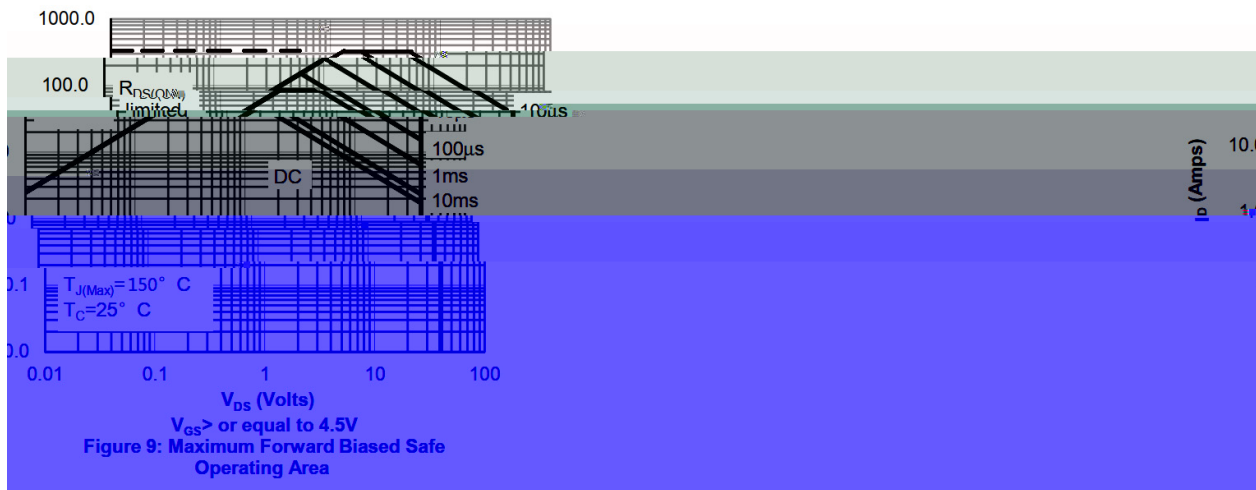


Figure 9: Maximum Forward Biased Safe Operating Area

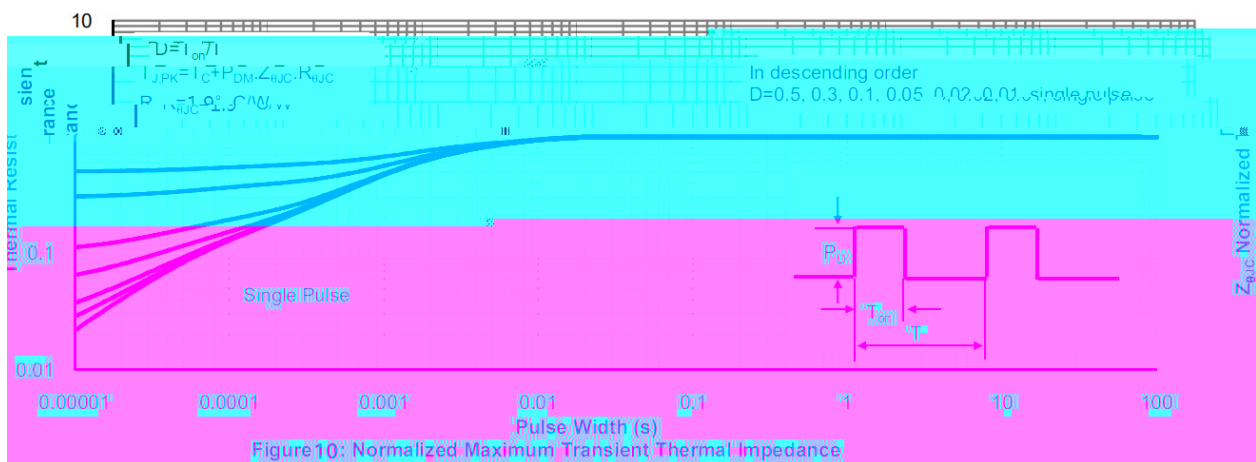
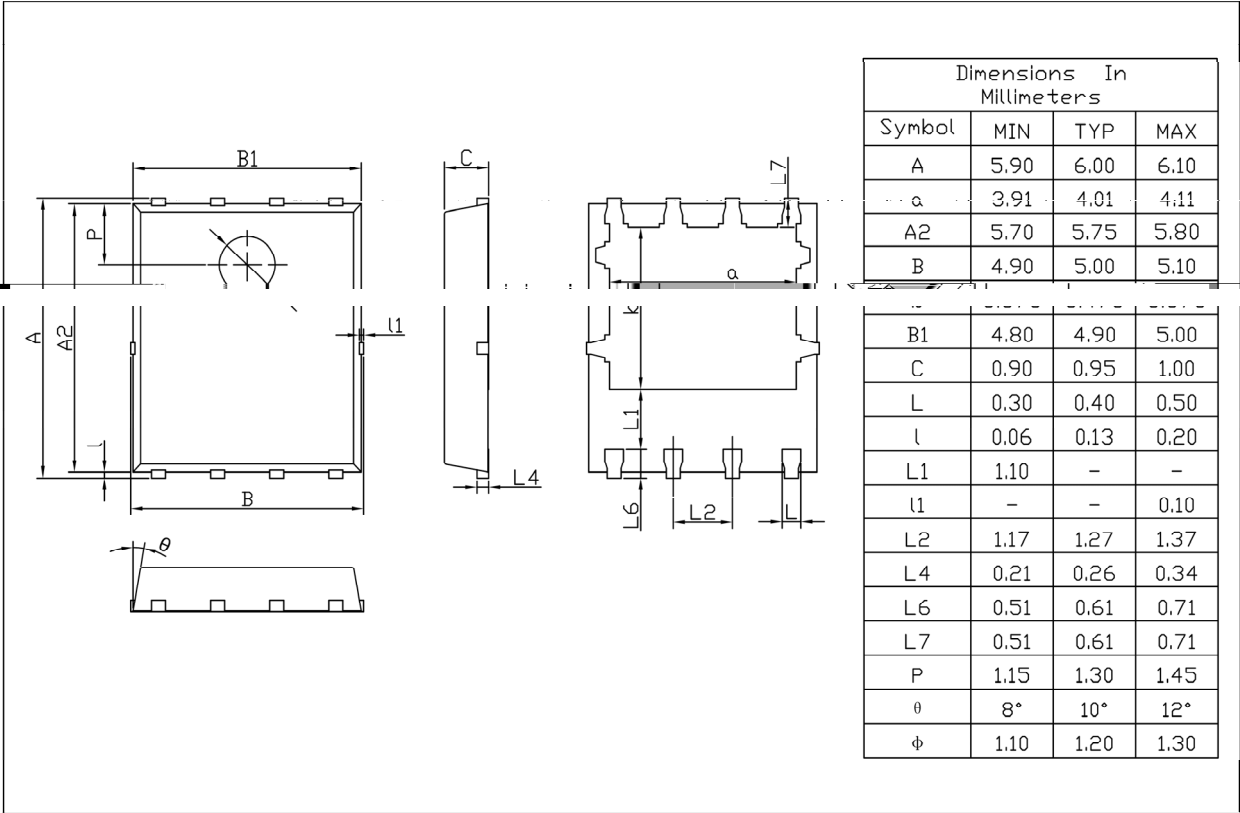


Figure 10: Normalized Maximum Transient Thermal Impedance

I Package Dimensions

PDFN5×6

Unit:mm



Rev.01 202209

/ Marking Instructions



BR

015N04S

Note

BR

Company Code

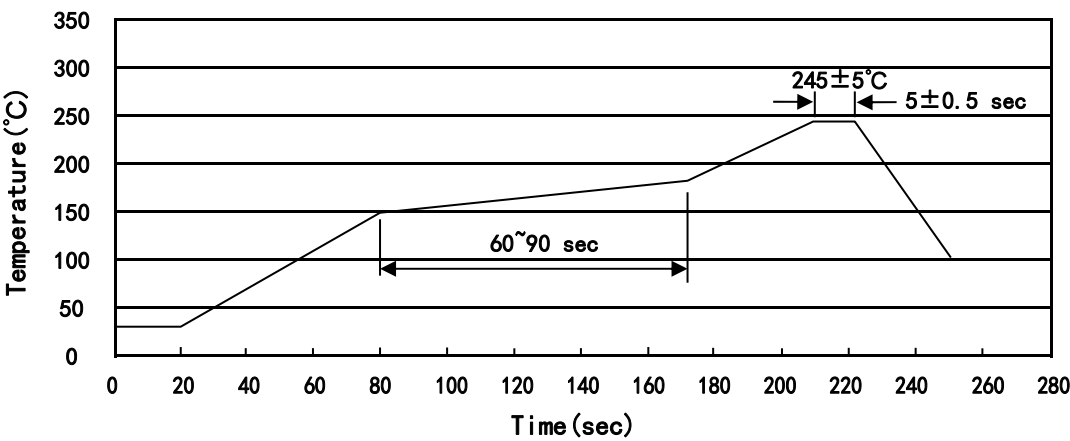
015N04S

Product Type

****.

Lot No. Code, code change with Lot No

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 180

60 90sec;

1.Preheating:150~180 , Time:60~90sec.
- 2

245±5

5±0.5sec;

2.Peak Temp.:245±5 , Duration:5±0.5sec.
- 3

2 10

/sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
PDFN5×6	5000	2	10000	6	60000	13"×12	360×360×50	380×335×366

/ Notices