/ Descriptions

PDFN5×6 N

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

/ Features

V_{DS} (V) = 60V I_D =43A (V_{GS} = ±20V)

$R_{DS(ON)}$@10V≤13mΩ(Typ.11.5mΩ)

$R_{DS(ON)}$@4.5V≤18mΩ(Typ.15.5mΩ)

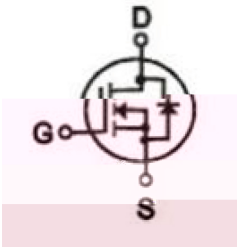
HF Product.

/ Applications

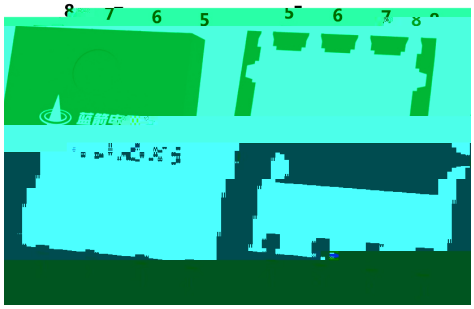
DC-DC

Secondary Side Synchronous Rectification, DC-DC Converter, Motor Control, Load Switching.

/ Equivalent Circuit



/ Pinning



PIN1 2 3 S PIN4 G PIN5 6 7 8 D

Pin	极性
1	S
2	S
3	S
4	G
5	D
6	D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(T_a=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Continuous Drain Current		I_D	43	A
Pulsed Drain Current		I_{DM}	111	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_D(T_c=25)	43	W
Avalanche energy(L=0.5mH)		E_{AS}	200	mJ
Avalanche Current(L=0.5mH)		I_{AS}	20	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Maximum Junction-to-Ambient	t ≤ 10s	$R_{\theta JA}$	25	/ W
	Steady-State		60	
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	2.9	

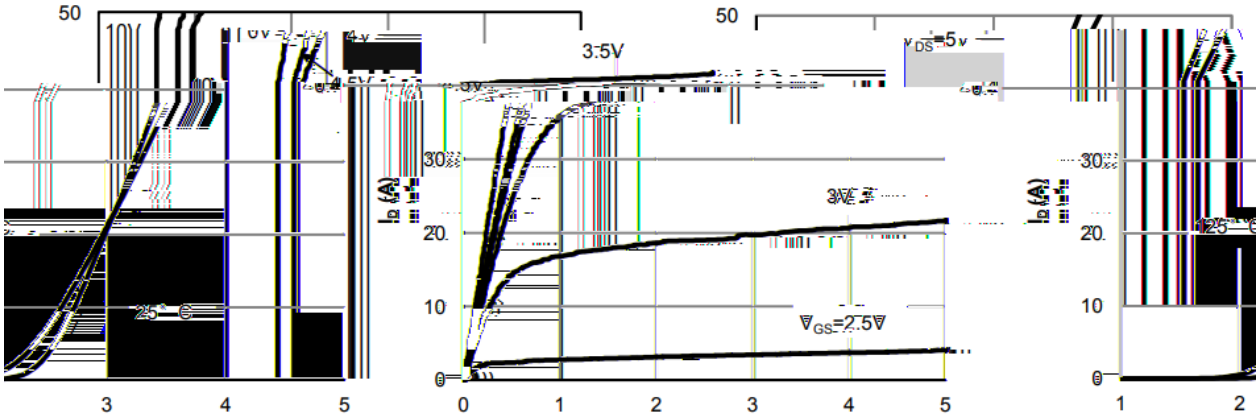
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	60	64		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		11.5	13	mΩ
		V_{GS}=4.5V I_D=10A		15.5	18	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		1010		pF
Output Capacitance	C_{oss}			250		
Reverse Transfer Capacitance	C_{rss}			280		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		2.3		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V V_{DS}=30V I_D=13A		13.5		nC
Total Gate Charge	$Q_{g(4.5V)}$			6.5		
Gate Source Charge	Q_{gs}			2.5		
Gate Drain Charge	Q_{gd}			3.0		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=30V R_L=2.3Ω R_{GEN}=3Ω		5		ns
Turn-On Rise Time	t_r			3		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			3		

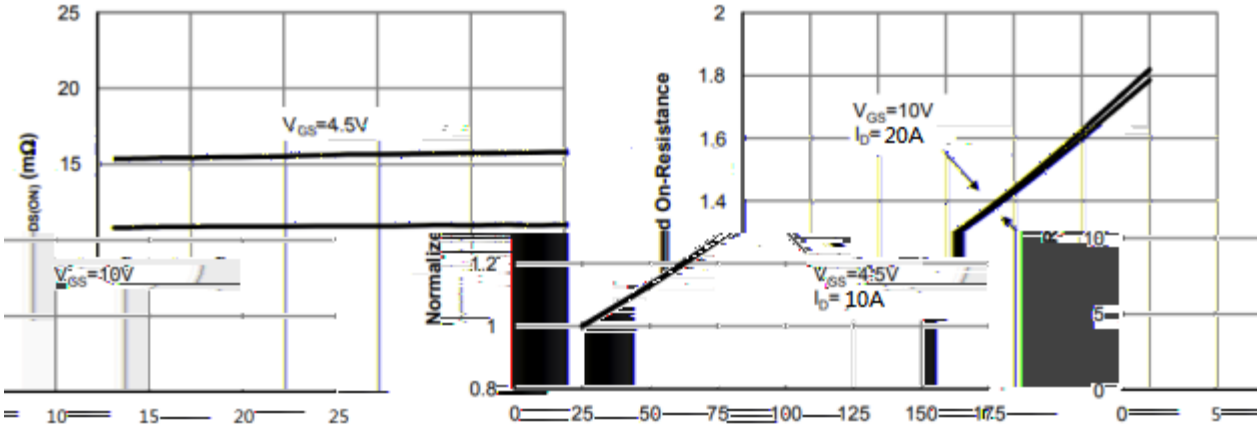
/ Electrical Characteristic Curve



V_{GS} (Volts)
e 2: Transfer Characteristics

V_{DS} (Volts)
Figure 1: On-Region Characteristics

Figur



Voltage

Figure 4: On-Resistance vs. Junction Temperature

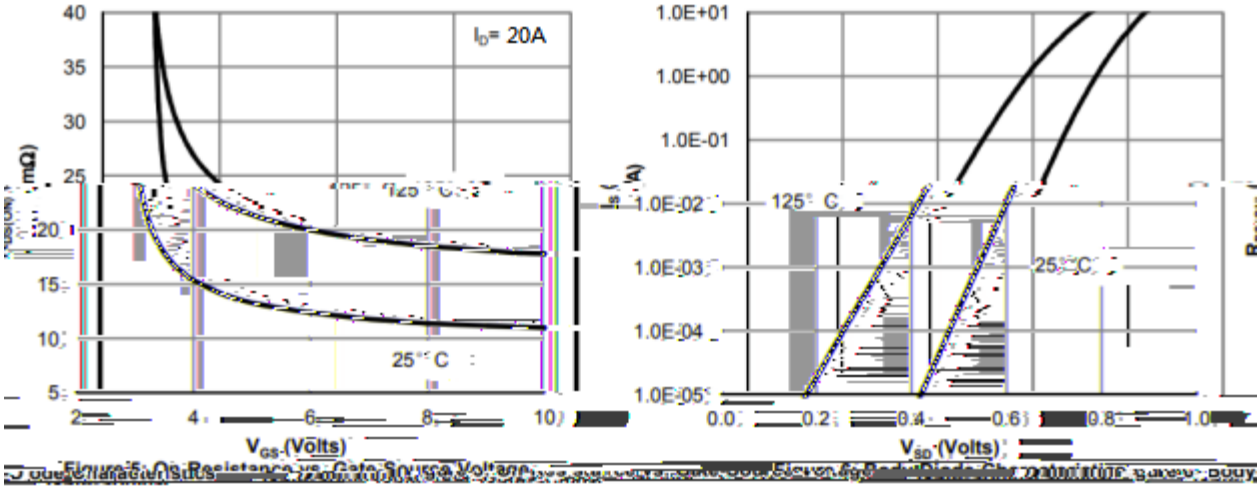


Figure 5: On-Resistance vs. Gate-Source Voltage

/ Electrical Characteristic Curve

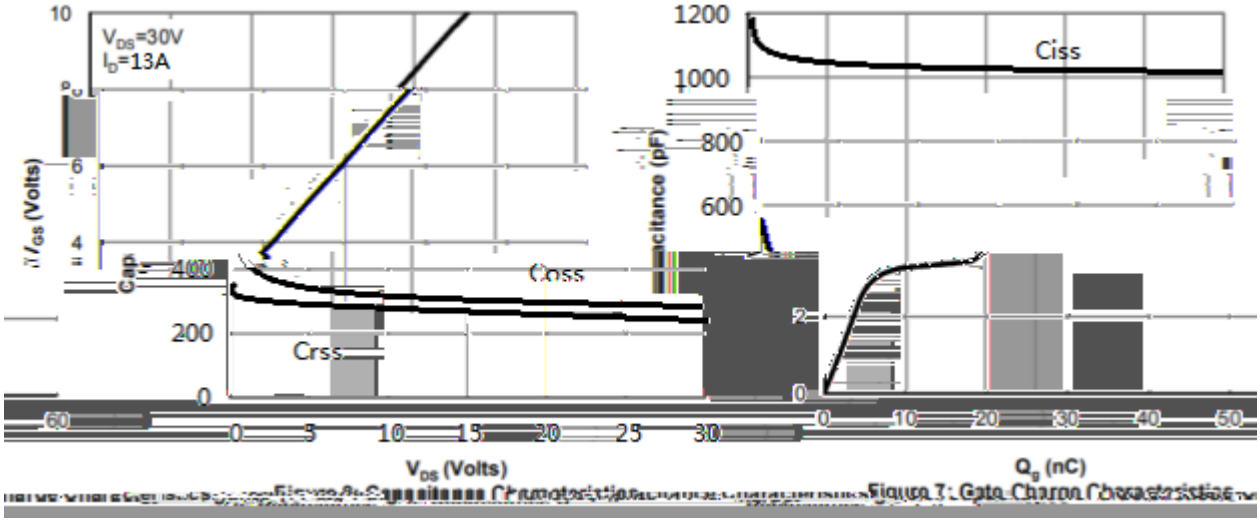
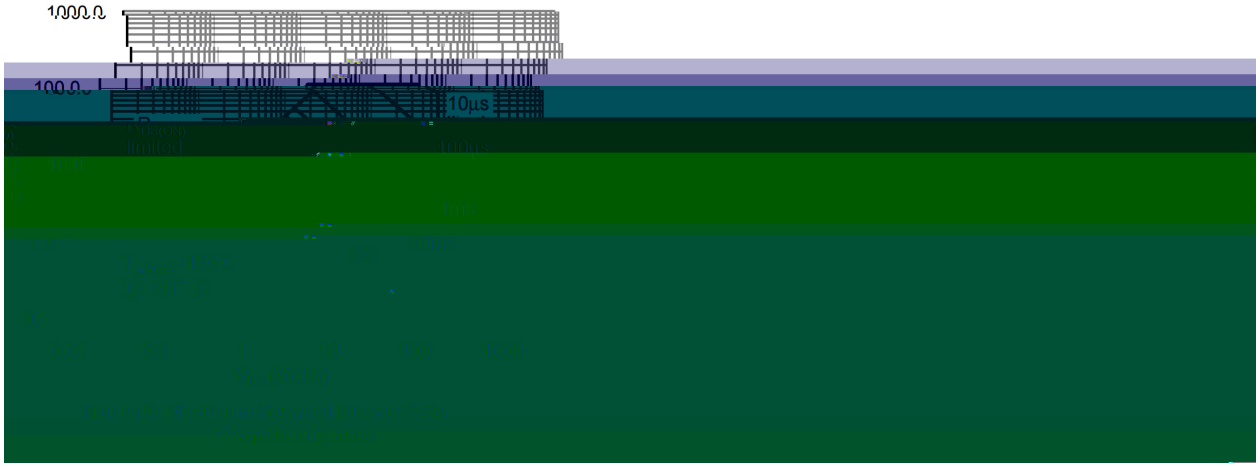


Figure 8: Capacitance Characteristics

Figure 7: Gate Charge Characteristics



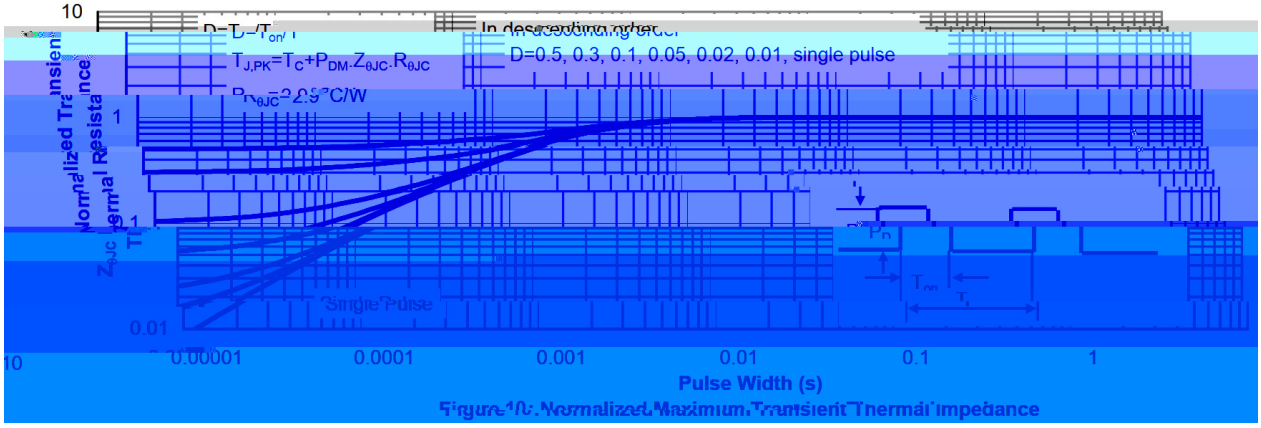
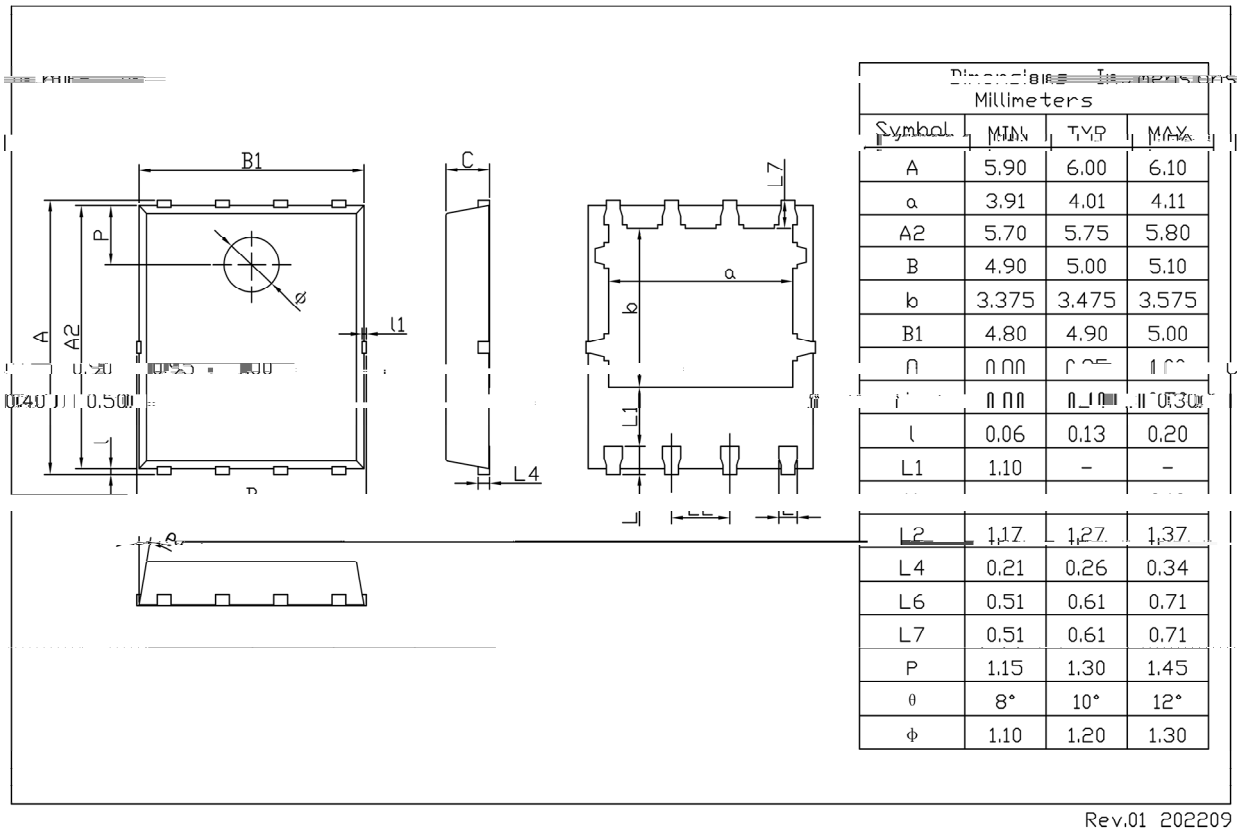


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

PDFN5×6 Unit:mm



Symbol	Millimeters MIN	TYP	MAX
A	5.90	6.00	6.10
a	3.91	4.01	4.11
A2	5.70	5.75	5.80
B	4.90	5.00	5.10
b	3.375	3.475	3.575
B1	4.80	4.90	5.00
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
l	0.06	0.13	0.20
L1	1.10	–	–
[illegible]	[illegible]	[illegible]	[illegible]
L2	1.17	1.27	1.37
L4	0.21	0.26	0.34
L6	0.51	0.61	0.71
L7	0.51	0.61	0.71
P	1.15	1.30	1.45
θ	8°	10°	12°
Φ	1.10	1.20	1.30

Rev.01 202209

/ Marking Instructions

BR

120N06S

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Note

BR	Company Code
120N06S	Product Type Code
****:	Lot No. Code, code change with Lot No

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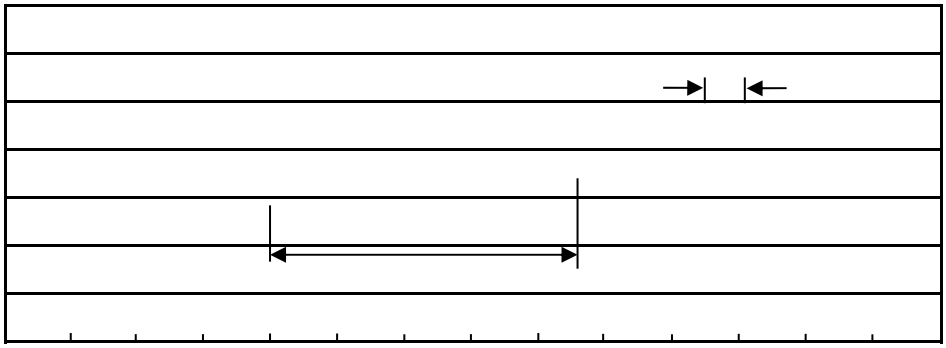

Note:

1	150	180	60	90sec;
2	245±5		5±0.5sec;	
3		2	10	/sec.

1.Preheating:150~180 , Time:60~90sec.
2.Peak Temp.:245±5 , Duration:5±0.5sec.
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					Dimension		(unit mm³)
	/	/	/	/	/			
PDFN5×6	5,000	2	10,000	6	60,000	13''×12	360×360×50	380×335×366

/ Notices