

/ Descriptions

PDFN5×6–Clip N

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

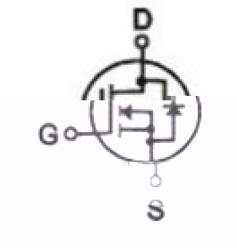
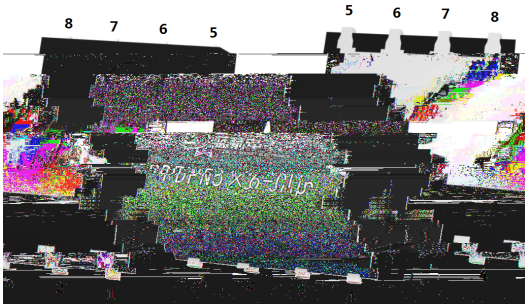
/ Features $V_{DS}(V)=40V$ $I_D=200A$ $R_{DS(ON)}@10V \leq 0.8m\Omega$ (Typ. $0.65m\Omega$) $R_{DS(ON)}@4.5V \leq 1.3m\Omega$ (Typ. $1.1m\Omega$)

。 HF Product.

/ Applications

DC-DC

Motor drivers, DC-DC Converter.

/ 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
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	200	A
	$I_D(T_c=100^\circ\text{C})$	200	A
Drain Current – Pulsed	$I_{DM}(T_c=25^\circ\text{C})$	800	A
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	150	W
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 175	
Diode Forward Current	$I_S(T_c=25^\circ\text{C})$	200	A
Single Pulsed Avalanche Energy($L=1.0\text{mH}$)	E_{AS}	1012	mJ
Thermal resistance, junction – ambient	$R_{\theta JA}$	56	/ W
Thermal resistance, junction – case	$R_{\theta JC}$	1	

Note:

1. Surface Mounted on 1 in² pad area, $t \leq 10$ sec
2. Pulse width $\leq 10 \mu\text{s}$, duty cycle $\leq 1\%$
3. limited by bonding wire

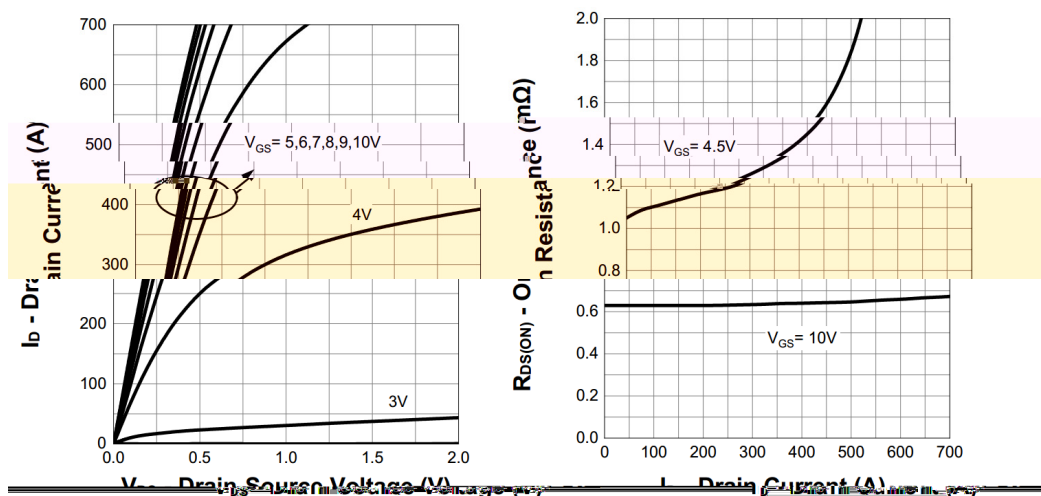
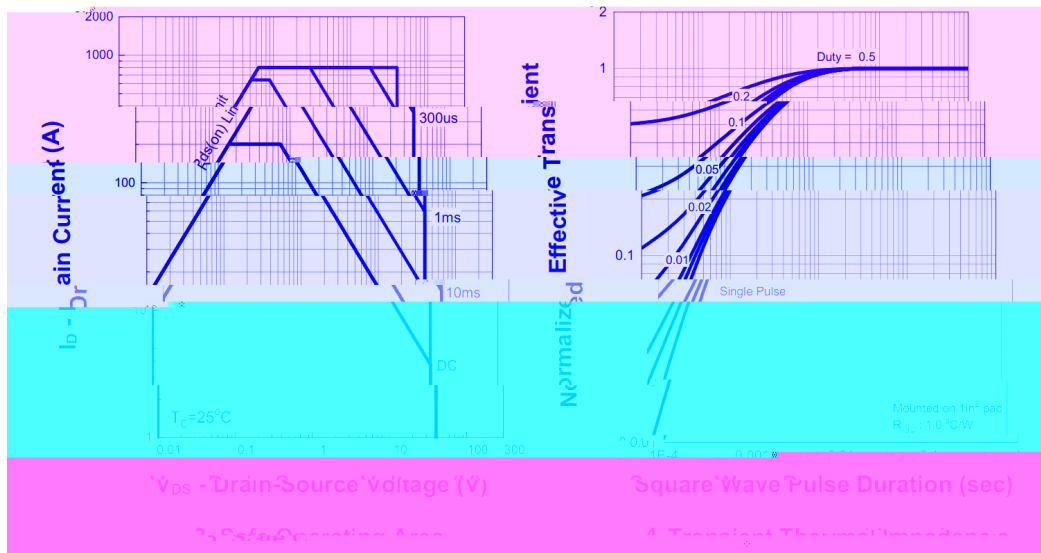
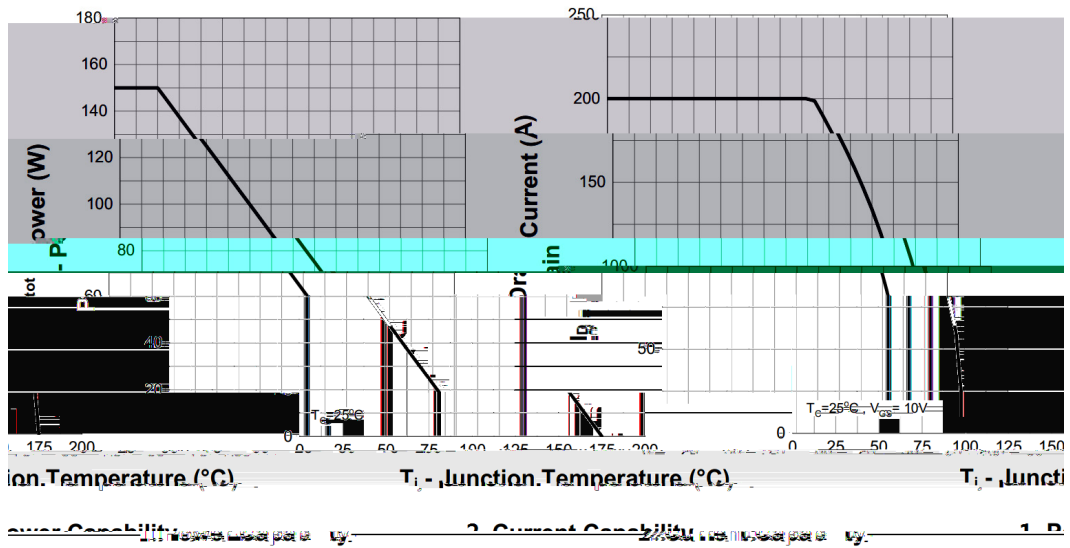
/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0		2.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=32V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=30A$		0.65	0.8	m Ω
		$V_{GS}=4.5V$ $I_D=20A$		1.1	1.3	m Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=30A$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS} = 30 A, V_{GS} = 0 V$ $dI_{SD}/dt = 100 A/\mu s$		40		nS
Reverse Recovery Charge	Q_{rr}			28		nC
Input Capacitance	C_{iss}	$V_{DS}=20V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		5702		pF
Output Capacitance	C_{oss}			1876		
Reverse Transfer Capacitance	C_{rss}			204		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=20V$ $R_L=0.66\Omega$ $R_{GEN}=3.9\Omega$ $I_{DS}=30A$		54		ns
Turn-On Rise Time	t_r			65		
Turn-Off Delay Time	$t_{d(off)}$			101		
Turn-Off Fall Time	t_f			73		
Total Gate Charge	Q_g	$V_{GS}=10V$ $V_{DS}=20V$ $I_D=30A$		114		nC
Gate Source Charge	Q_{gs}			23		
Gate Drain Charge	Q_{gd}			25		

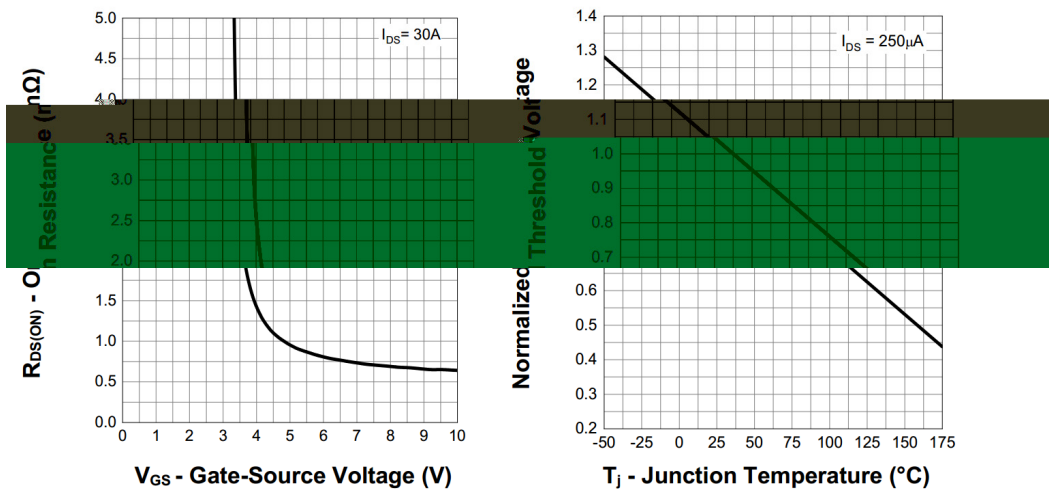
/ Electrical Characteristic Curve



5. Output Characteristics

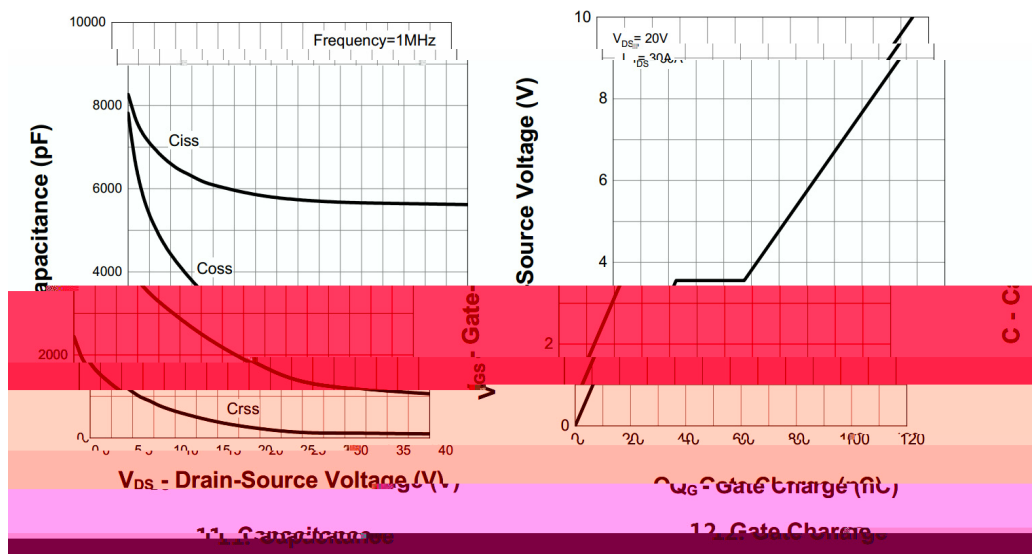
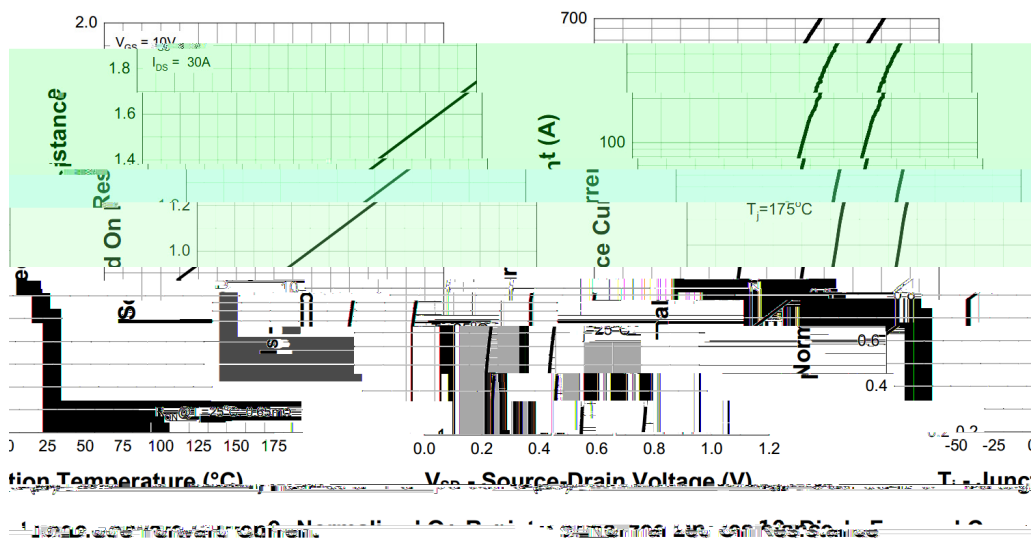
6. On Resistance

/ Electrical Characteristic Curve

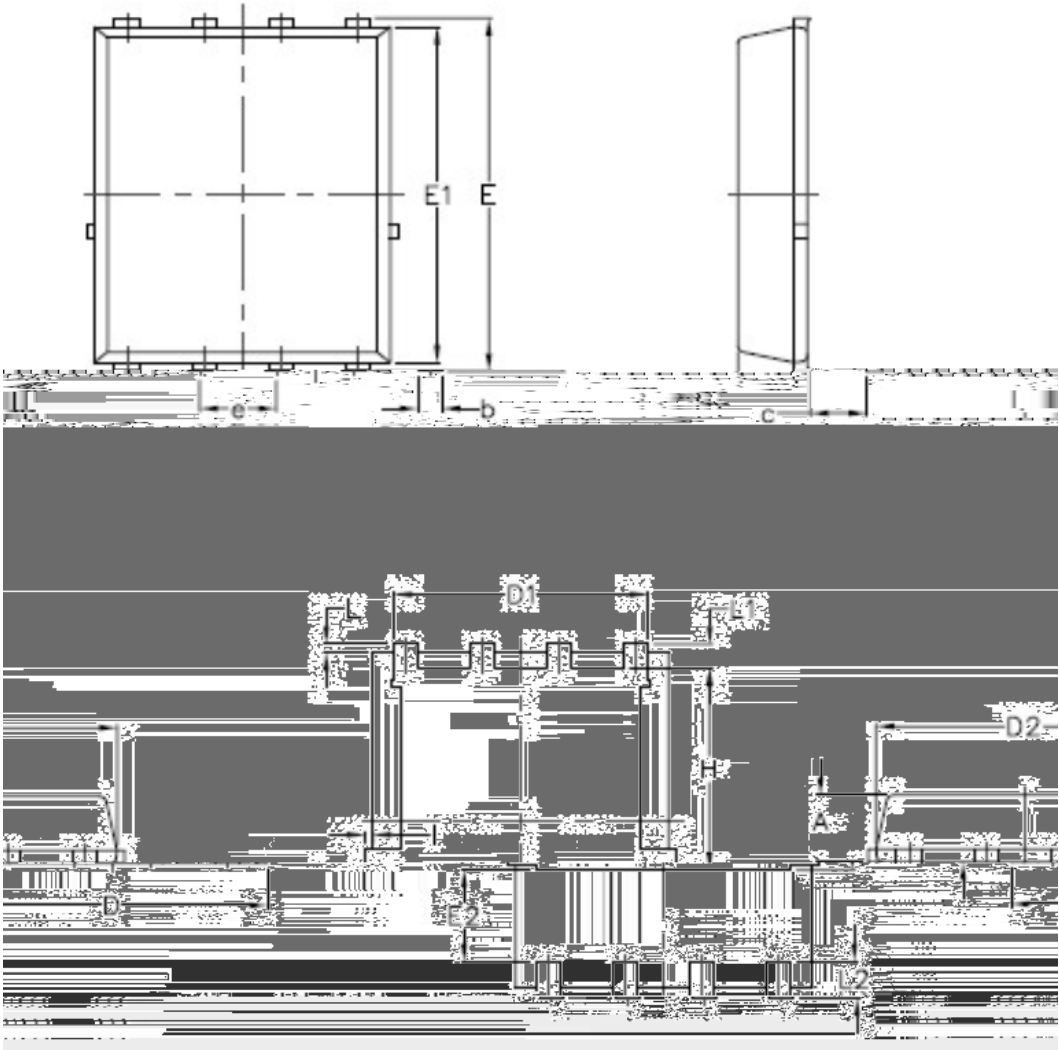


7. Transfer Characteristics

8. Normalized Threshold Voltage



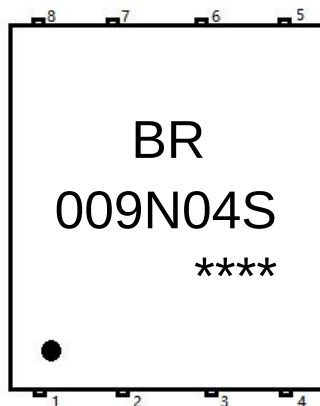
/ Package Dimensions



Symbol	Dimensions In Millimeters		
	MAX.	Symbol	MIN.
A	1.17	A	1.03
b	0.48	b	0.34
c	0.970	c	0.824
D	5.40	D	4.80
D1	4.31	D1	4.11
E	5.95	E	6.15
E1	5.65	E1	5.85
E2	1.40	E2	-
E	1.27 BSC		
L	0.05	L	0.25
L1	0.38	L1	0.50
L2	0.38	L2	0.71
H	3.30	H	3.50
I	-	I	0.18



/ Marking Instructions



BR

009N04S

Note

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Company Code

009N04S

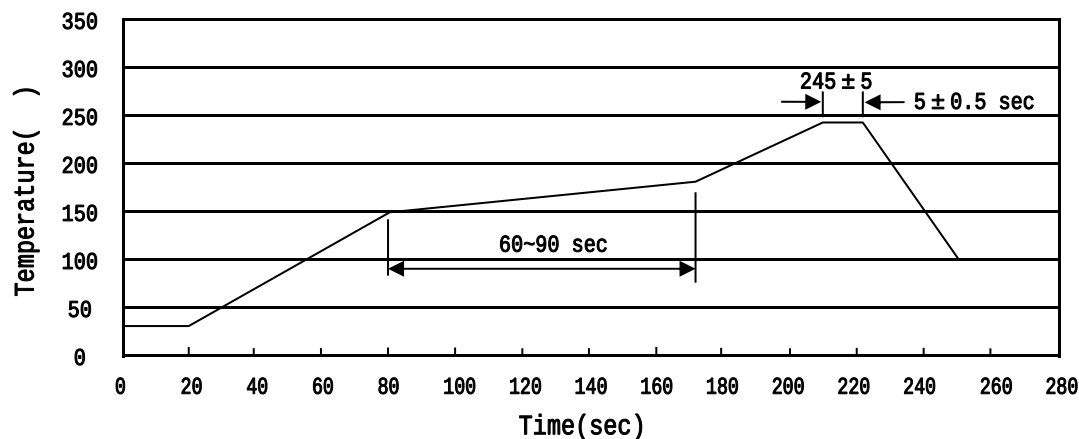
Product Type Code

****:

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 °C, Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 °C, Duration:5±0.5sec. |
| 3 | | | 2 | 10 °C/sec. | 3. Cooling Speed: 2~10 °C/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 mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
PDFN5×6-Clip	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

/ Notices

All information provided in this document is subject to legal disclaimers.