## / Descriptions

PDFN5Ö6–Clip Ṃ Ḅ N ŏ ʃ ѽ Ẓ ᄀ

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

## / Features

$V_{DS}$(V)=40V $I_D$=200A

$R_{DS(ON)}$@10V≤0.8mΩ(Typ. 0.65mΩ)

$R_{DS(ON)}$@4.5V≤1.3mΩ(Typ.1.1mΩ)

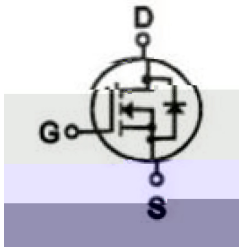
ḭ ғ β HF Product.

## / Applications

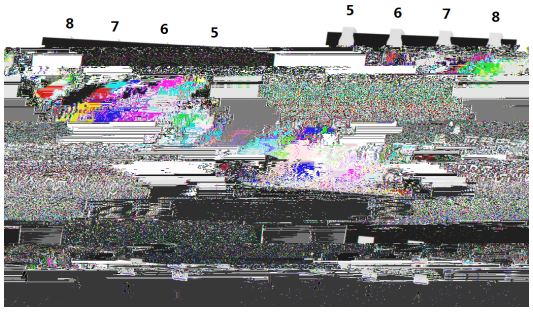
ɔ ɨ ʊ ʰ ı DC-DC ȩ Ѿ ʰ

Motor drivers, DC-DC Converter.

## / Equivalent Circuit




## / Pinning




PIN1 2 3 S PIN4 G PIN5 6 7 8 D

## / Marking

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See Marking Instructions.

| v ¨Ω<br>Parameter | ϒ N<br>Symbol | ¨Ω Ö<br>Rating | D Ĵ<br>Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 40 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Drain Current : ˙ | $I_D$(Tc=25 ł ) | 200 | A |
| | $I_D$(Tc=100 ł ) | 200 | A |
| Drain Current – Pulsed : ˙ ˙ | $I_{DM}$(Tc=25 ł ) | 800 | A |
| Power Dissipation : | $P_D$(Tc=25 ł ) | 150 | W |
| Operating and Storage Temperature Range | $T_J$,$T_{stg}$ | -55 to 175 | ł |
| Diode Forward Current | $I_S$(Tc=25 ł ) | 200 | A |
| Single Pulsed Avalanche Energy(L=1.0mH) | $E_{AS}$ | 1012 | mJ |
| Thermal resistance, junction – ambient : | $R_{\theta JA}$ | 56 | ł / W |
| Thermal resistance, junction – case : | $R_{\theta JC}$ | 1 | |

Note:

1. Surface Mounted on 1 in$^2$ pad area, t ≤ 10 sec
2. Pulse width ≤ 10 μs, duty cycle ≤ 1 %
3. limited by bonding wire

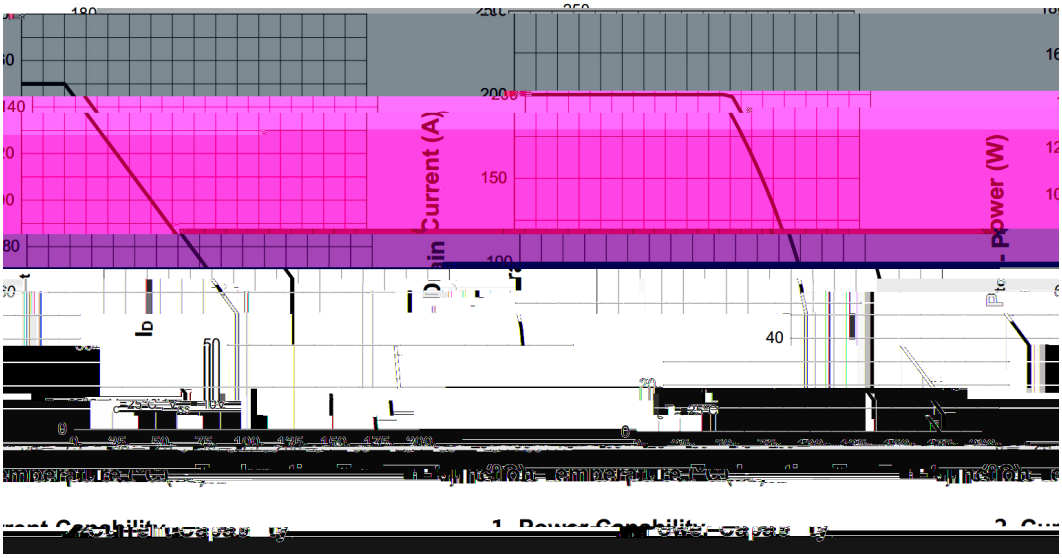
| v ¨Ω<br>Parameter | ϒ N<br>Symbol | ˙ ˙ ˙ ˙ ˙<br>Test Conditions | ω ņ Ö<br>Min | Ɛ ʒ Ö<br>Typ | ω ź Ö<br>Max | D Ĵ<br>Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V $I_D$=250μA | 40 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=250μA | 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 | $I_{GSS}$ | $V_{GS}$=±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 | mΩ |
| | | $V_{GS}$=4.5V $I_D$=20A | | 1.1 | 1.3 | mΩ |

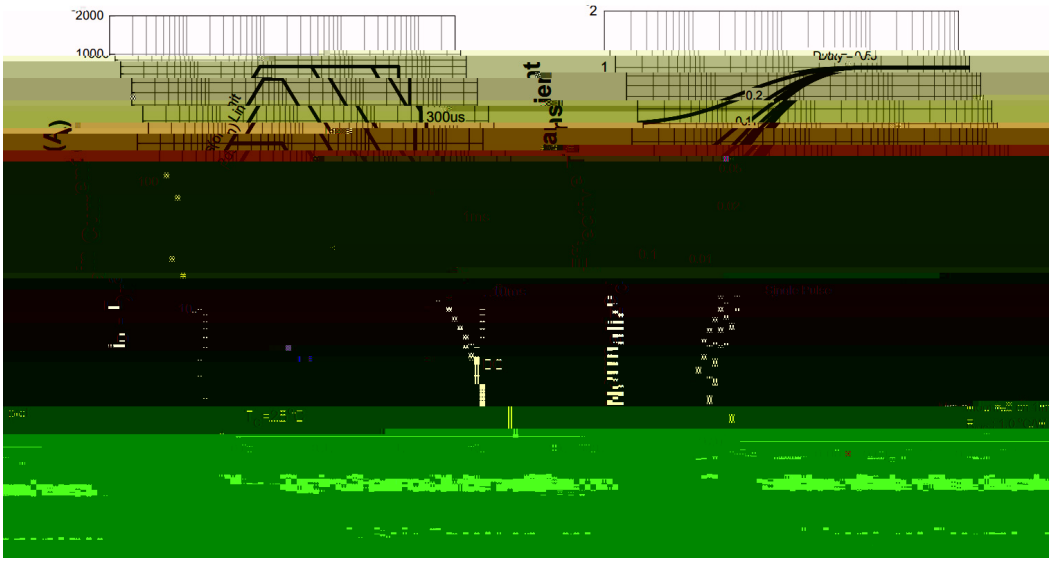
Drain-Source Diode Forward

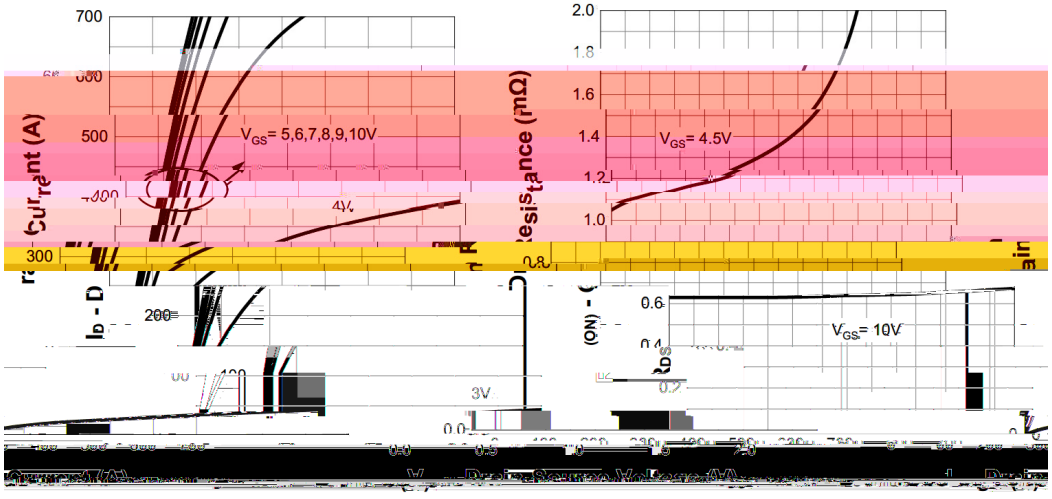
## / Electrical Characteristics(Ta=25 )

| v ¨Ω<br>Parameter | ϒ N<br>Symbol | ╨ ;ˆ ţ<br>Test Conditions | ѡ ŋ Ө<br>Min | Ɛ ʒ Ө<br>Typ | ѡ ᶻ Ө<br>Max | ᴅ Ꮒ<br>Unit |
|---|---|---|---|---|---|---|
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=10V $V_{DS}$=20V<br>$R_L$=0.66Ω $R_{GEN}$=3.9Ω<br>$I_{DS}$=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<br>$I_D$=30A | | 114 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 23 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 25 | | |

## / Electrical Characteristic Curve



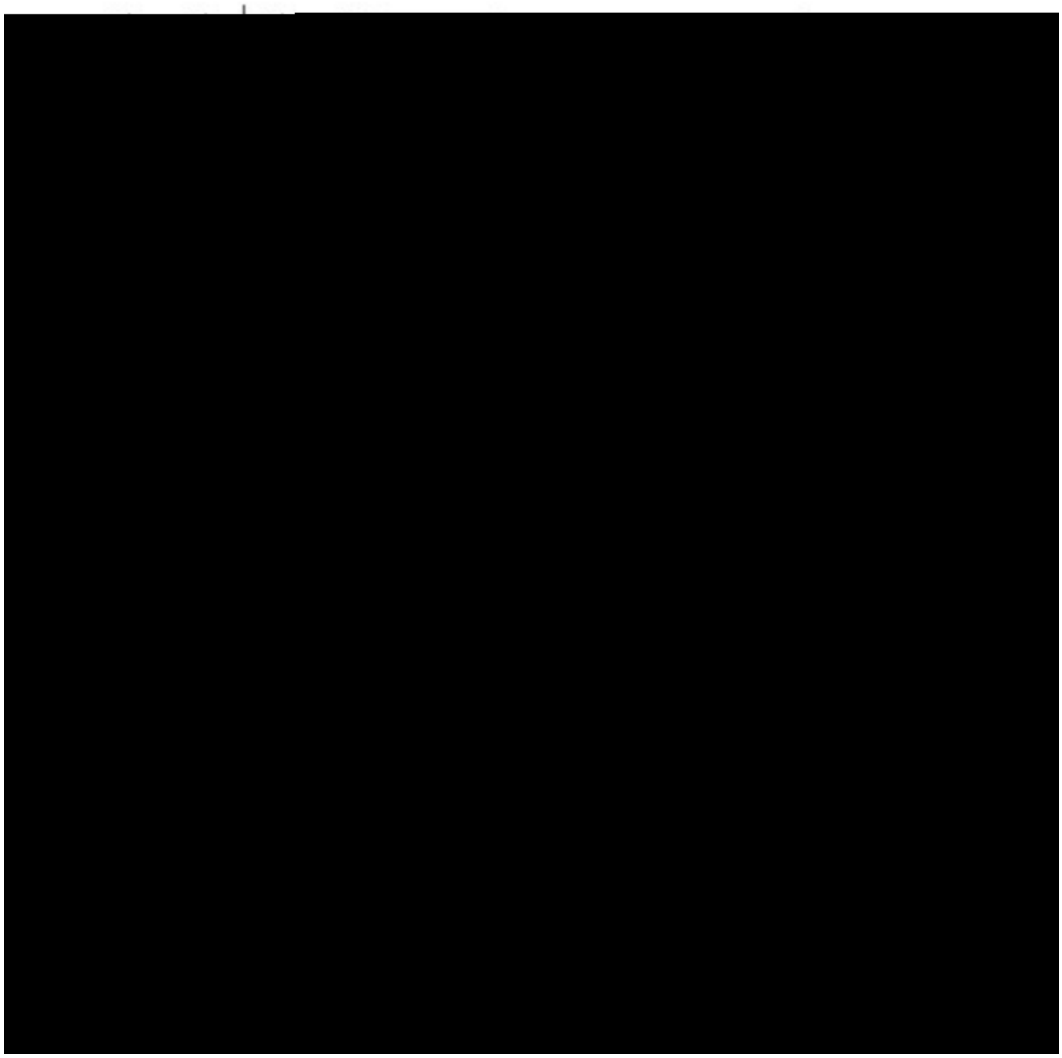




**6. On Resistance** **5. Output Characteristics**

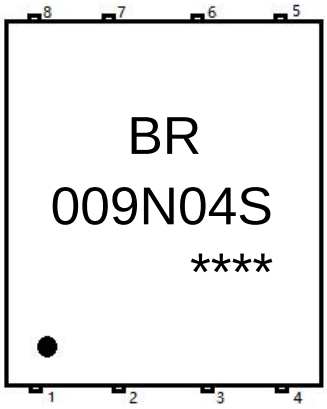
## / Electrical Characteristic Curve

## / Package Dimensions



| MAX. | Symbol | MIN. | |
|---|---|---|---|
| 1.17 | A | 1.03 | |
| 0.970 | | 0.924 | |
| 4.80 | | 5.40 | D |
| 4.11 | | 4.31 | D1 |
| | E | 5.95 | 6.15 |
| | E1 | 5.65 | 5.85 |
| | E2 | 1.40 | - |
| | F | 1.27 BSC | |
| 0.25 | L | 0.05 | |
| 0.50 | L1 | 0.38 | |
| 0.71 | L2 | 0.38 | |
| 3.50 | H | 3.30 | |
| 0.18 | | - | |

## / Marking Instructions

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| EU χ | ѫ ϗ ͷ Ґ |
| 009N04S χ | ѫ ϳ ᴺ Ґ |
| ---- χ | ѫ ɨ ғ ӈ ᴺ Ґ ɪ ₹ ɨ ғ ӈ ᴺ Ψ ק |
| Note χ | |
| BR χ | Company Code |
| 009N04S χ | Product Type Code |
| ****: | Lot No. Code, code change with Lot No. |

## ure Profile for IR Reflow Soldering(Pb-Free)

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Note:

sec;

.5sec;

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

2.Peak Temp.:245 ° 5 ł , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 ł /sec.

## oldering Heat Test Conditions

Temp.:260±5 Time:10±1 sec

| | Dimension (unit mm³) |
|---|---|