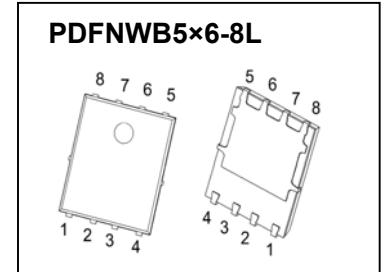




JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD
PDFNWB5×6-8L Plastic-Encapsulate MOSFET

CJAC2R5SN04C N-Channel Power MOSFET

| | | |
|----------------------------|------------------------------|----------------------|
| V_{(BR)DSS} | R_{DS(on)}TYP | I_D |
| 40V | 2.0mΩ@10V | 130A |
| | 3.0mΩ@4.5V | |



DESCRIPTION

The N-Channel enhancement mode power field effect transistors is using SGT technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

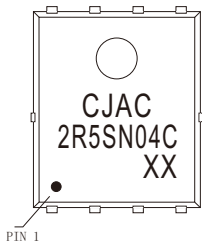
FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low R_{DS(ON)}
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATIONS

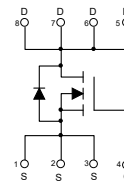
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING



CJAC2R5SN04C = Part No.
 Solid dot = Pin1 indicator.
 XX = Code.

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_J=25°C unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|--|-----------------------------------|----------|------|
| Drain-Source Voltage | V _{DS} | 40 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D ^① | 130 | A |
| Pulsed Drain Current | I _{DM} ^{①②} | 520 | A |
| Single Pulsed Avalanche Energy | E _{AS} ^③ | 250 | mJ |
| Power Dissipation | P _D ^① | 96 | W |
| Thermal Resistance from Junction to Ambient | R _{θJA} ^⑤ | 62.5 | °C/W |
| Thermal Resistance from Junction to Case | R _{θJC} ^① | 1.3 | °C/W |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55~+150 | °C |

MOSFET ELECTRICAL CHARACTERISTICS

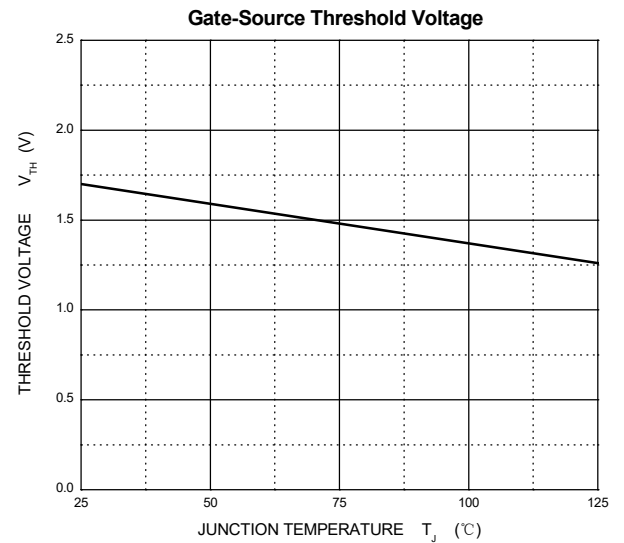
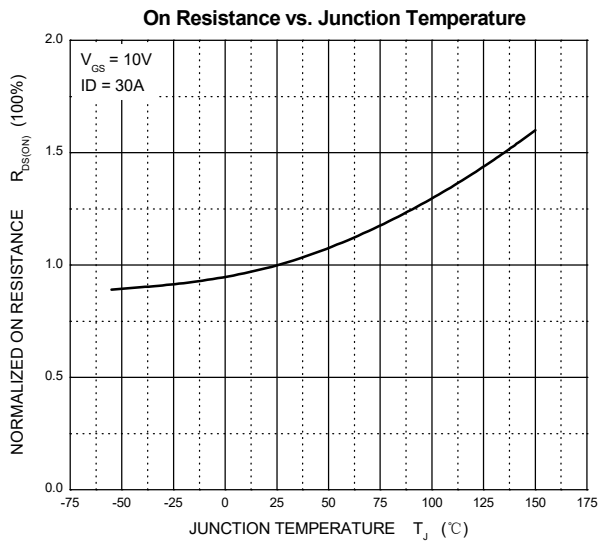
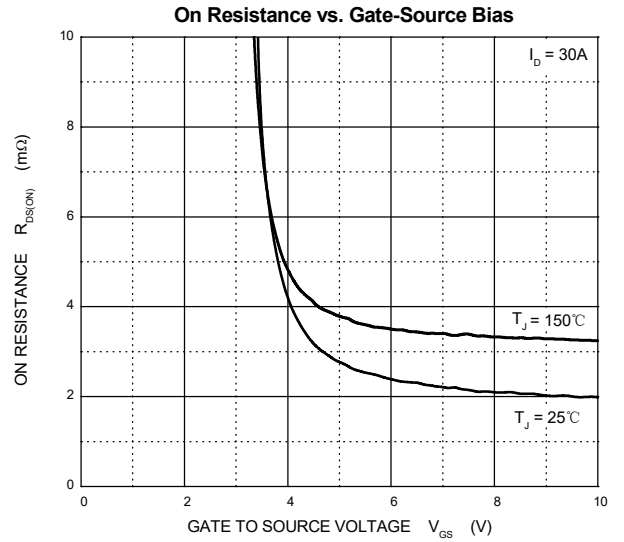
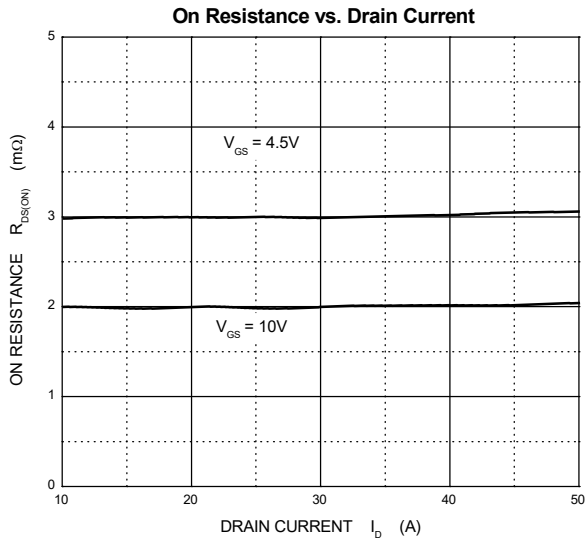
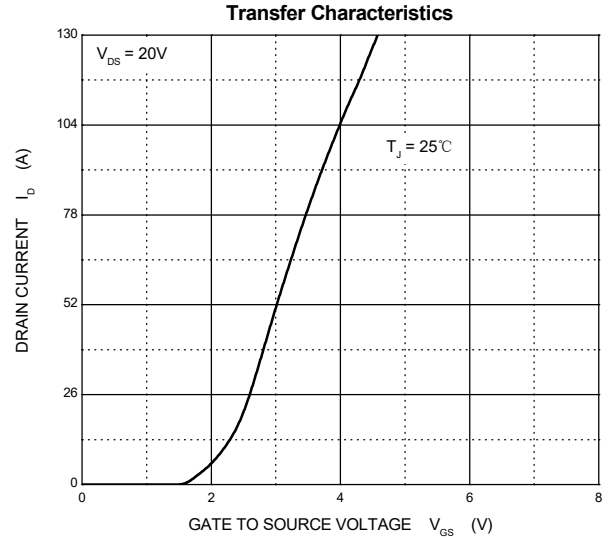
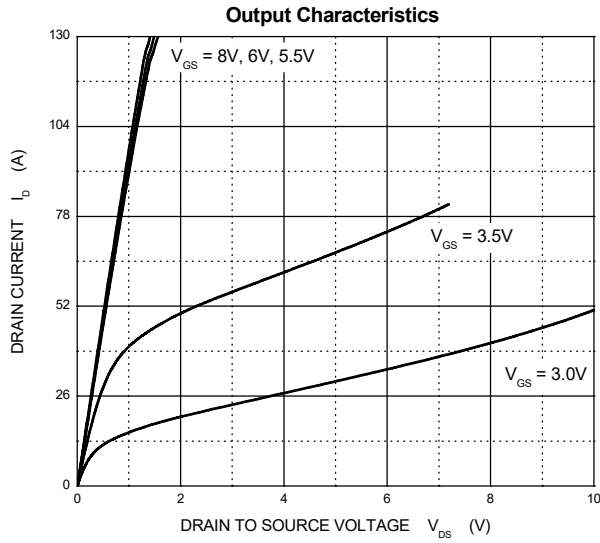
$T_J=25^{\circ}\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit | |
|---|------------------------|--|-----------------------------|------|-----------|-------------|---------------|
| Off characteristics | | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 1mA$ | 40 | - | - | V | |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 32V, V_{GS} = 0V$ | $T_J = 25^{\circ}\text{C}$ | - | - | 1.0 | μA |
| | | | $T_J = 125^{\circ}\text{C}$ | - | - | 100 | |
| Gate-body leakage current | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 20V$ | - | - | ± 100 | nA | |
| On characteristics ^④ | | | | | | | |
| Gate-threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$ | 1.0 | 1.7 | 2.5 | V | |
| Static drain-source on-state resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 30A$ | - | 2.0 | 2.5 | m Ω | |
| | | $V_{GS} = 4.5V, I_D = 30A$ | - | 3.0 | 4.5 | m Ω | |
| Dynamic characteristics | | | | | | | |
| Input capacitance | C_{iss} | $V_{DS} = 20V, V_{GS} = 0V, f = 100\text{kHz}$ | - | 1743 | - | pF | |
| Output capacitance | C_{oss} | | - | 589 | - | | |
| Reverse transfer capacitance | C_{rss} | | - | 23 | - | | |
| Gate resistance | R_g | $f = 1\text{MHz}$ | - | 4.8 | - | Ω | |
| Switching characteristics | | | | | | | |
| Total gate charge | Q_g | $V_{GS} = 4.5V, V_{DS} = 20V, I_D = 65A$ | - | 11.9 | - | nC | |
| Total gate charge | Q_g | $V_{GS} = 10V, V_{DS} = 20V, I_D = 65A$ | - | 26.2 | - | | |
| Gate-source charge | Q_{gs} | | - | 4.6 | - | | |
| Gate-drain charge | Q_{gd} | | - | 5.2 | - | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{DS} = 20V, V_{GS} = 10V, R_L = 0.8\Omega, R_g = 5.2\Omega$ | - | 12 | - | ns | |
| Turn-on rise time | t_r | | - | 3.2 | - | | |
| Turn-off delay time | $t_{d(off)}$ | | - | 49 | - | | |
| Turn-off fall time | t_f | | - | 24.5 | - | | |
| Drain-Source Diode Characteristics | | | | | | | |
| Drain-source diode forward voltage | V_{SD} ^④ | $V_{GS} = 0V, I_S = 30A$ | - | - | 1.3 | V | |
| Continuous drain-source diode forward current | I_S ^① | | - | - | 130 | A | |
| Pulsed drain-source diode forward current | I_{SM} ^{①②} | | - | - | 520 | A | |
| Reverse recovery time | t_{rr} | $di_S/dt = 100A/\mu\text{s}, I_S = 30A, V_{DD} = 30V$ | - | 60 | - | ns | |
| Reverse recovery charge | Q_{rr} | | - | 71 | - | nC | |

Notes:

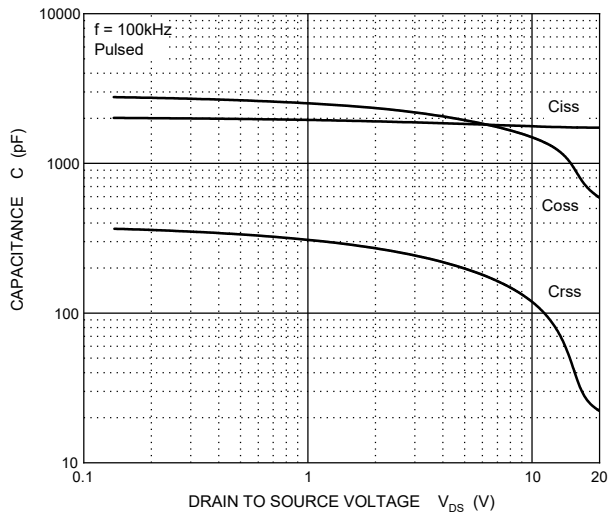
- $T_C = 25^{\circ}\text{C}$.
- Limited only by maximum temperature allowed.
- $V_{DD} = 20V, V_{GS} = 10V, L = 0.5\text{mH}, R_g = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.
- Pulse Test : Pulse Width $\leq 380\mu\text{s}$, duty cycle $\leq 2\%$.
- Device mounted on 1 in² FR-4 board with 2oz. single-sided Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

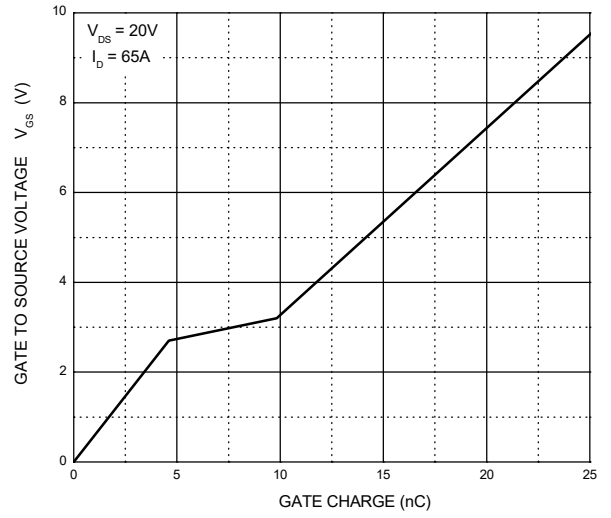


Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

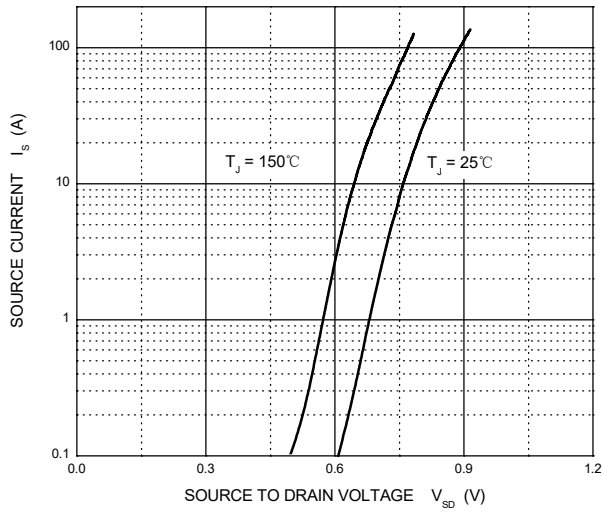
Typical Capacitances



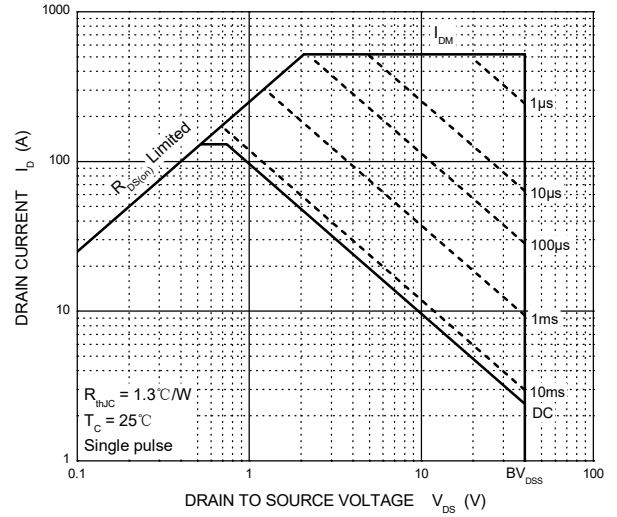
Gate Charge



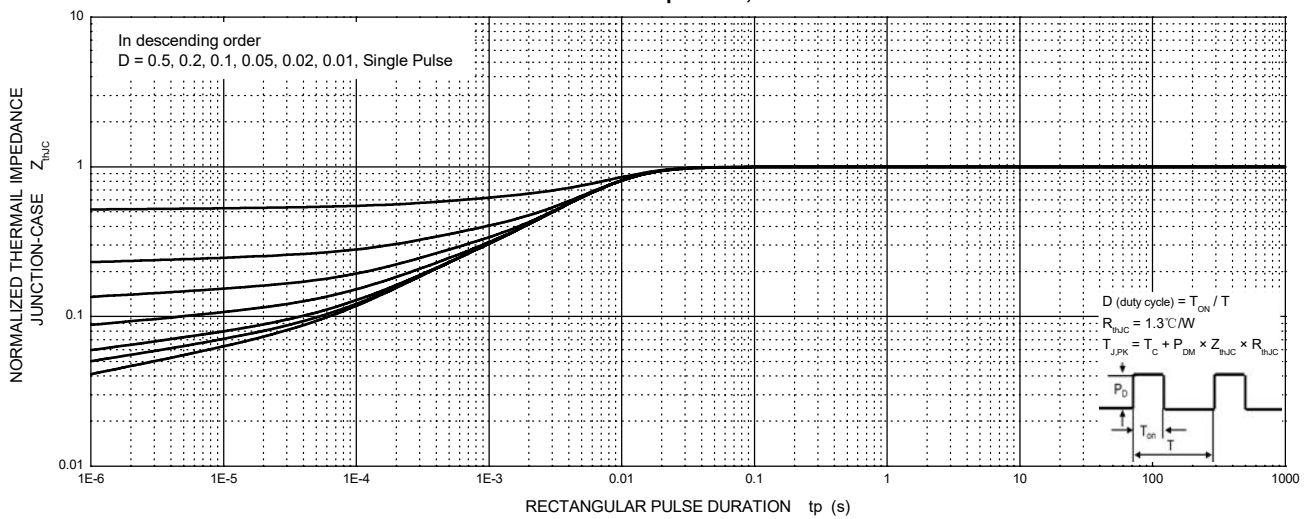
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

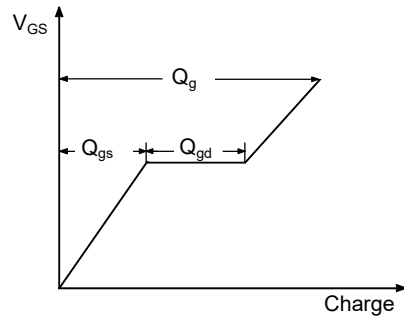
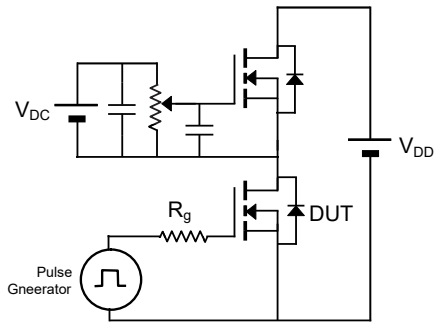


Transient Thermal Impedance, Junction-Case

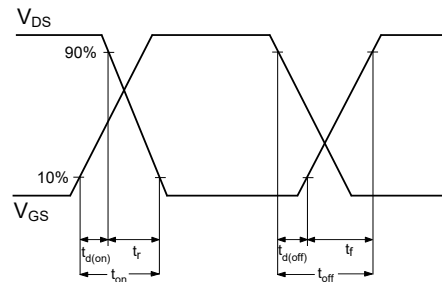
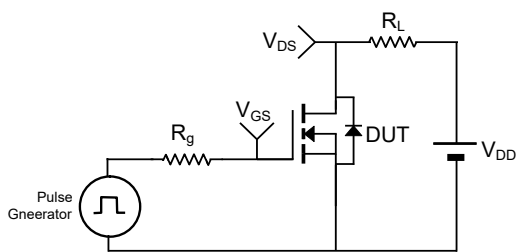


TEST CIRCUIT AND WAVEFORMS

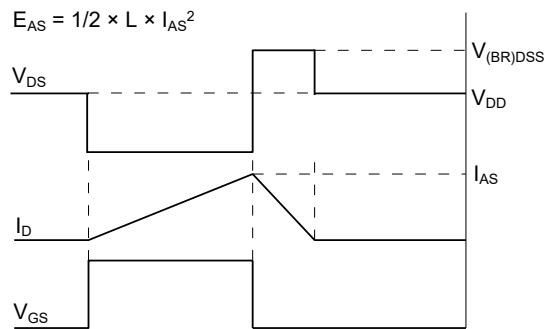
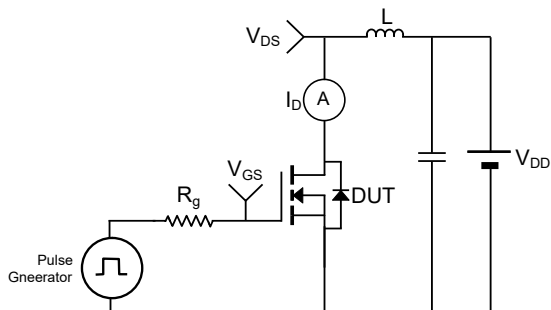
Gate Charge



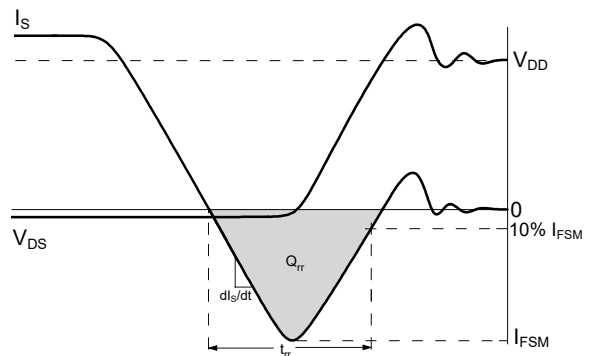
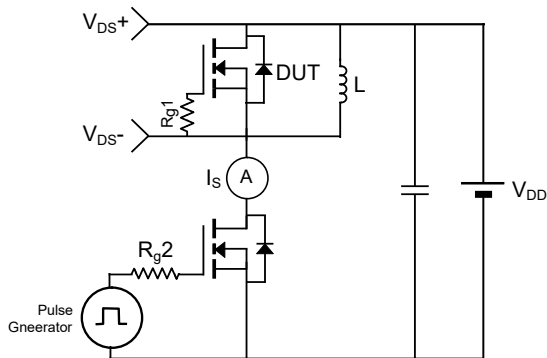
Resistive Load Switching Time



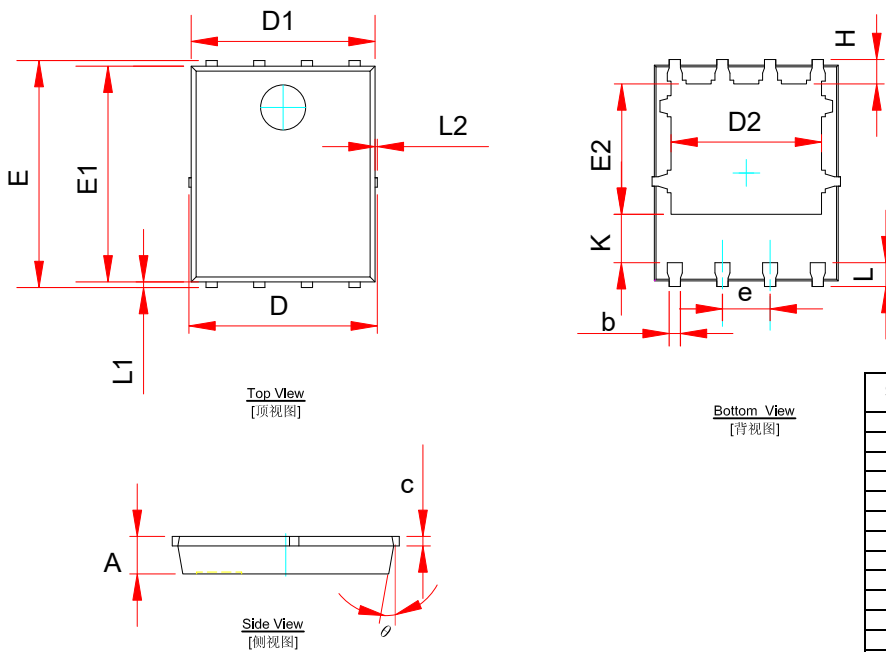
Un-clamped Inductive Load Switching



Drain-Source Body Diode Reverse Recovery

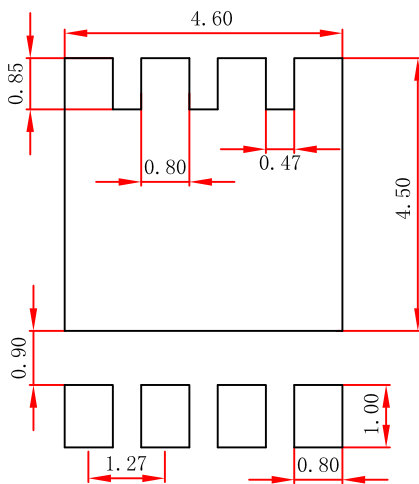


PDFNWB5x6-8L-B Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| b | 0.200 | 0.400 | 0.008 | 0.016 |
| c | 0.210 | 0.340 | 0.008 | 0.013 |
| D | | 5.100 | | 0.201 |
| D1 | 4.800 | 5.000 | 0.189 | 0.197 |
| D2 | 3.910 | 4.110 | 0.154 | 0.162 |
| e | 1.27 BSC | | 0.050 BSC | |
| E | 5.900 | 6.100 | 0.232 | 0.240 |
| E1 | 5.650 | 5.850 | 0.222 | 0.230 |
| E2 | 3.375 | 3.575 | 0.133 | 0.141 |
| H | 0.550 | 0.750 | 0.022 | 0.030 |
| K | 1.200 | | 0.047 | |
| L | 0.550 | 0.750 | 0.022 | 0.030 |
| L1 | 0.050 | 0.250 | 0.002 | 0.010 |
| L2 | | 0.120 | | 0.005 |
| θ | 8° | 12° | 8° | 12° |

PDFNWB5x6-8L Suggested Pad Layout



Note:

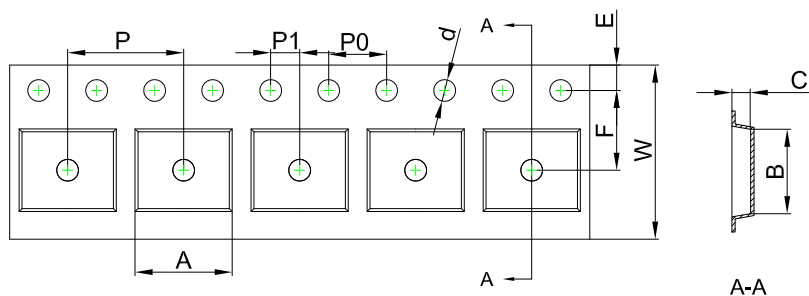
1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

PDFNWB5×6 Tape and Reel

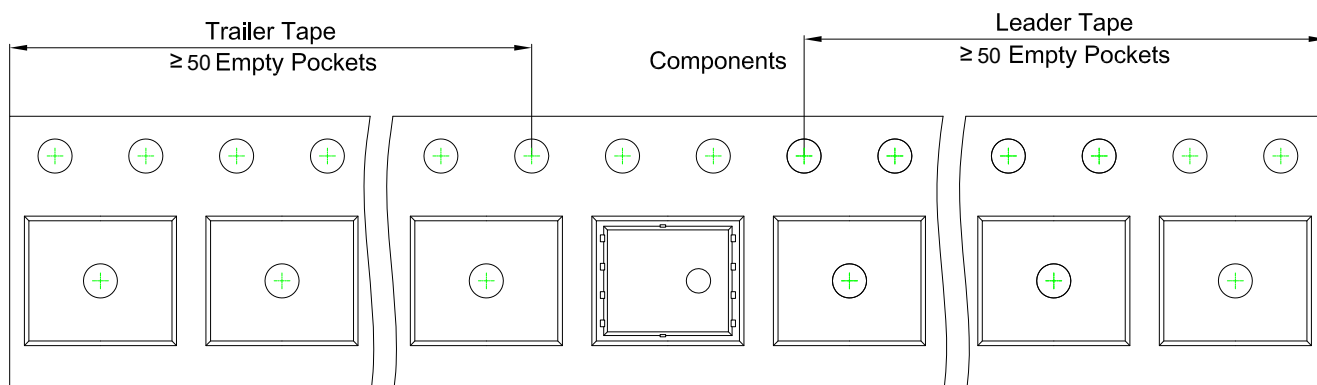
PDFNWB5×6-8L Embossed Carrier Tape



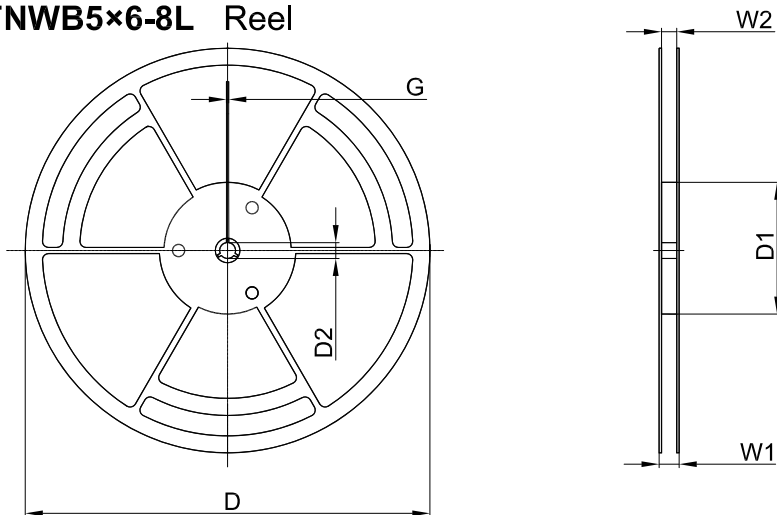
Packaging Description:
PDFNWB5×6-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 5,000 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| PDFNWB5×6-8L | 6.30 | 5.30 | 1.10 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |

PDFNWB5×6-8L Tape Leader and Trailer



PDFNWB5×6-8L Reel



| Dimensions are in millimeter | | | | | | |
|------------------------------|---------|--------|-------|------|-------|-------|
| Reel Option | D | D1 | D2 | G | W1 | W2 |
| 13"Dia | Ø330.00 | 100.00 | 13.00 | 1.90 | 17.60 | 12.40 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) |
|-----------|-----------|-----------|--------------|------------|-----------------|
| 5,000 pcs | 13 inch | 5,000 pcs | 340×336×29 | 50,000 pcs | 353×346×365 |

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [Changjing Electronics Technology](#) manufacturer:

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#)
[DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#)
[DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [DMN12M3UCA6-7](#) [PJMF280N65E1_T0_00201](#) [PJMF380N65E1_T0_00201](#)
[PJMF280N60E1_T0_00201](#) [PJMF600N65E1_T0_00201](#) [PJMF900N65E1_T0_00201](#)