



Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|-----------------|-------|
| 30V | 8.5mΩ@10V | 20A |
| | 12mΩ@4.5V | |

Feature

- Trench Technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

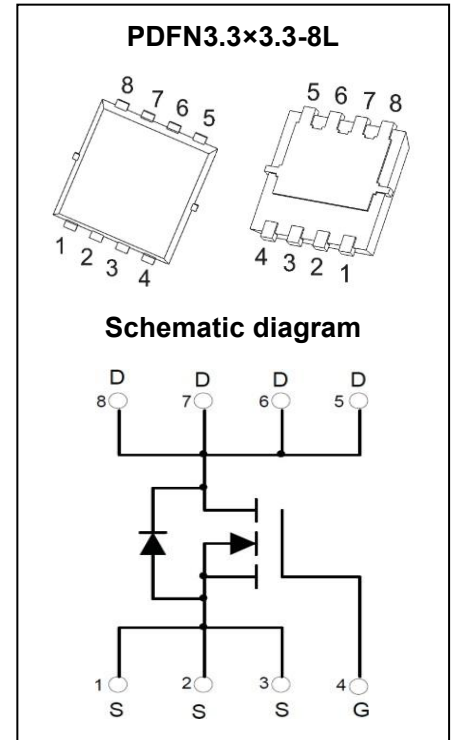
Application

- Power Switching Application

MARKING:



AB20N03= Device code
 Solid dot=Pin1 indicator
 XX=Date Code



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit | |
|--|---------------------------|-----------|---------------------------|---|
| Drain - Source Voltage | V_{DS} | 30 | V | |
| Gate - Source Voltage | V_{GS} | ±20 | V | |
| Continuous Drain Current ¹ | $T_C = 25^\circ\text{C}$ | I_D | 20 | A |
| | $T_C = 100^\circ\text{C}$ | I_D | 14 | A |
| Pulsed Drain Current ² | I_{DM} | 80 | A | |
| Single Pulsed Avalanche Current ³ | I_{AS} | 14.5 | A | |
| Single Pulsed Avalanche Energy ³ | E_{AS} | 10.5 | mJ | |
| Power Dissipation ⁵ | $T_C = 25^\circ\text{C}$ | P_D | 21 | W |
| Thermal Resistance from Junction to Ambient ⁶ | $R_{\theta JA}$ | 42 | $^\circ\text{C}/\text{W}$ | |
| Thermal Resistance from Junction to Case | $R_{\theta JC}$ | 6 | $^\circ\text{C}/\text{W}$ | |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ | |
| Storage Temperature | T_{STG} | -55~ +150 | $^\circ\text{C}$ | |

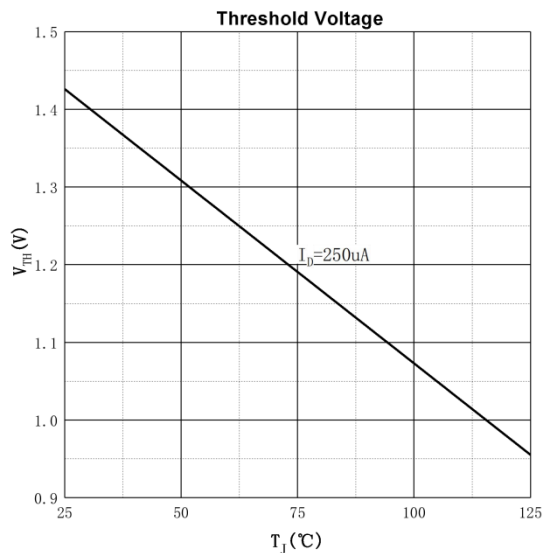
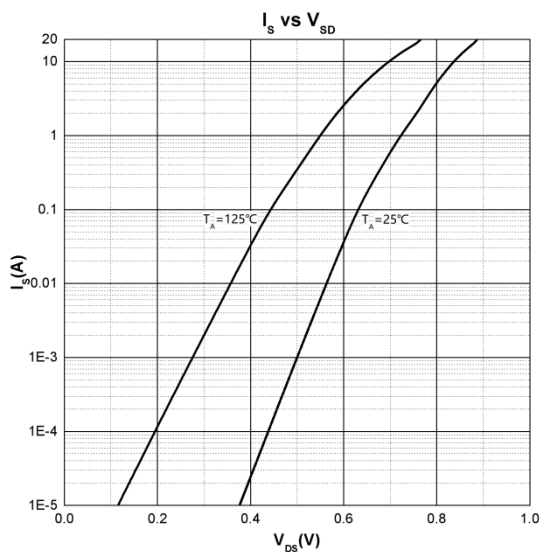
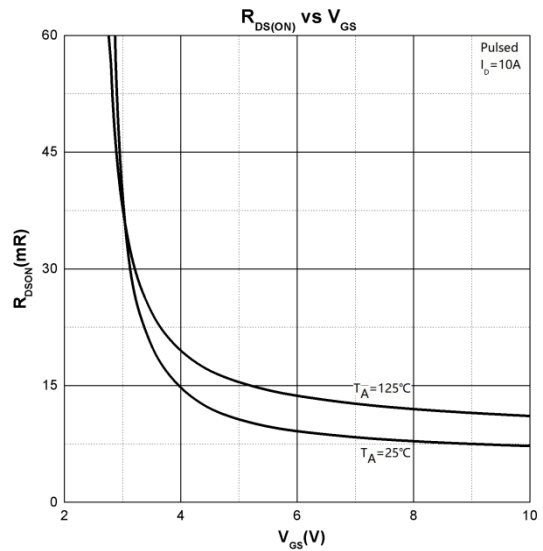
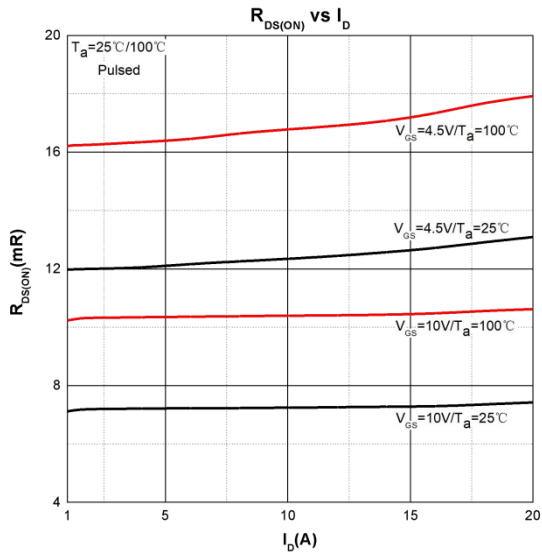
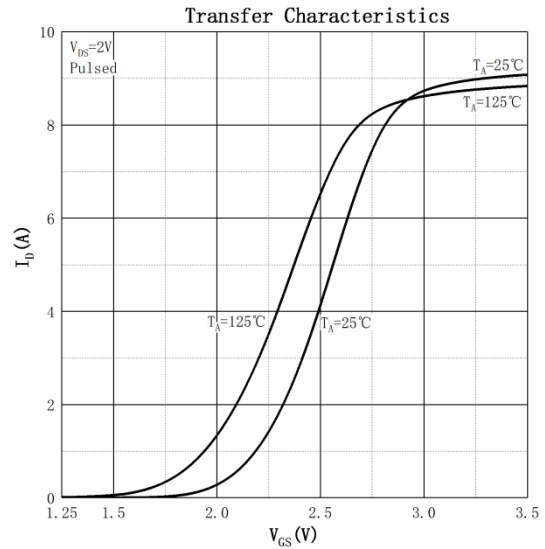
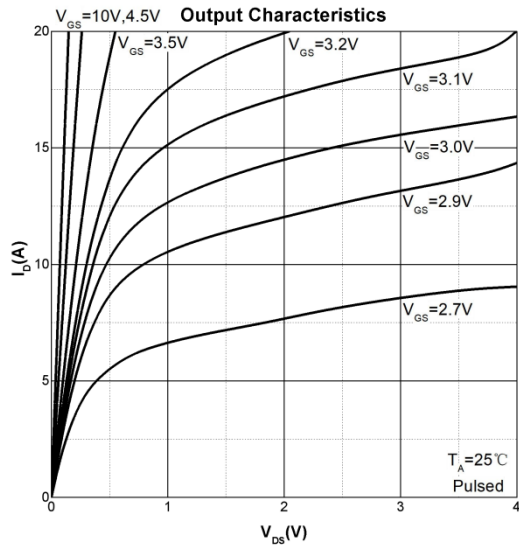
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

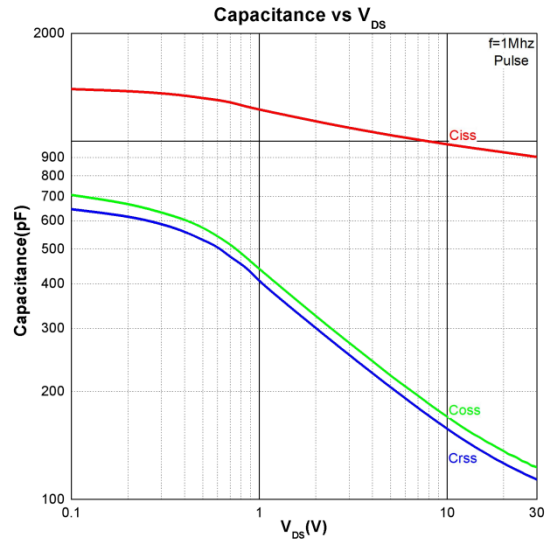
| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|---|---------------|--|-----|------|-----------|------------|
| Off Characteristics | | | | | | |
| Drain - Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 30 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 30V, V_{GS} = 0V$ | | | 1.0 | μA |
| Gate - Body Leakage Current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics⁴ | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 1.0 | 1.5 | 3.0 | V |
| Drain-source On-resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 12A$ | | 8.5 | 12.0 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 10A$ | | 12.0 | 18.0 | |
| Forward Transconductance | g_{FS} | $V_{DS} = 5V, I_D = 10A$ | 5.0 | 12.0 | | S |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ | | 970 | | pF |
| Output Capacitance | C_{oss} | | | 150 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 140 | | |
| Switching Characteristics | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = 15V, V_{GS} = 10V, I_D = 10A$ | | 16 | | nC |
| Gate-source Charge | Q_{gs} | | | 3 | | |
| Gate-drain Charge | Q_{gd} | | | 4.5 | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD} = 15V, V_{GS} = 10V, R_G = 1.8\Omega, R_L = 1.8\Omega$ | | | 10 | ns |
| Turn-on Rise Time | t_r | | | | 8 | |
| Turn-off Delay Time | $t_{d(off)}$ | | | | 30 | |
| Turn-off Fall Time | t_f | | | | 5 | |
| Source - Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage ⁴ | V_{SD} | $V_{GS} = 0V, I_S = 10A$ | | 0.83 | 1.2 | V |
| Diode Continuous Forward Current ¹ | I_S | $V_G = V_D = 0V, \text{Force Current}$ | | | 20 | A |
| Diode Pulse Forward Current ² | I_{SM} | | | | 80 | A |

Notes :

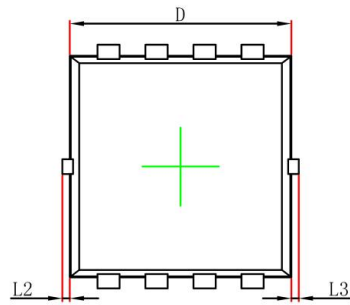
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
3. E_{AS} condition: $V_{DD} = 15V, V_{GS} = 10V, L = 0.1mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.And device mounted on a large heatsink
- 6.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics

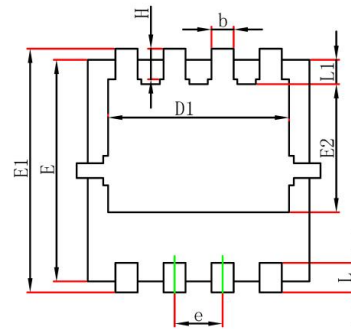




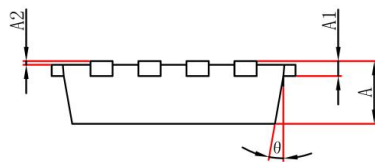
PDFN3.3×3.3-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.700 | 0.900 | 0.028 | 0.035 |
| A1 | 0.152REF | | 0.006REF | |
| A2 | 0.000 | 0.050 | 0.000 | 0.002 |
| D | 2.900 | 3.200 | 0.114 | 0.126 |
| D1 | 2.300 | 2.600 | 0.091 | 0.102 |
| E | 2.900 | 3.200 | 0.114 | 0.126 |
| E1 | 3.150 | 3.450 | 0.124 | 0.136 |
| E2 | 1.535 | 1.935 | 0.060 | 0.076 |
| b | 0.200 | 0.400 | 0.008 | 0.016 |
| e | 0.550 | 0.750 | 0.022 | 0.030 |
| L | 0.300 | 0.500 | 0.012 | 0.020 |
| L1 | 0.180 | 0.480 | 0.007 | 0.019 |
| L2 | 0.000 | 0.100 | 0.000 | 0.004 |
| L3 | 0.000 | 0.100 | 0.000 | 0.004 |
| H | 0.315 | 0.515 | 0.012 | 0.020 |
| θ | 0° | 12° | 0° | 12° |