## / Revised record

| | | | | | |
|---|---|---|---|---|---|
| A | 2021.04.18 | All | AOS-AONS32306 | | |
| B | 2021.05.26 | 2 | PK632BA ID PD Rth | | |
| A | 2022-8-2 | all | Q AEC-Q101 , Q 245± 5℃ 5±0.5sec 255±5℃ 5±0.5sec | | |
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## / Descriptions

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

## / Features

AEC-Q101

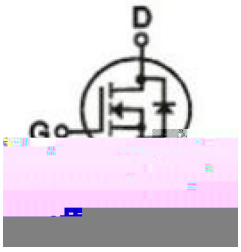
Low $R_{DS(ON)}$ to minimize conductive loss;low Gate Charge for fast switching;Low Thermal resistance; Qualified to AEC-Q101 Standards for High Reliability; HF Product.

## / Applications

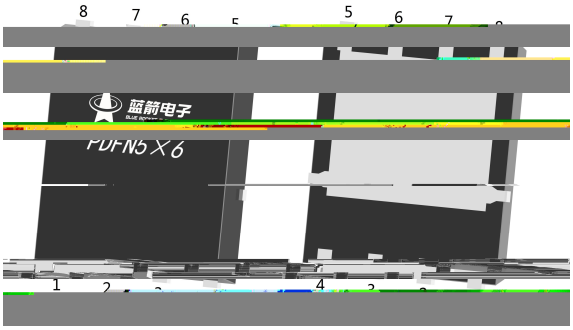
MB/NB/UMPC/VGA Buck -

Battery Management, High Frequency Point-of-Load Synchronous Buck Conventer for MB/NB/ UMPC/VGA, Networking DC-DC Power System, Load Switch, Meet the stringent requirements of automotive applications.

## / 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 |
| 7 | D |
| 8 | D |

## / Marking

。See Marking Instructions.

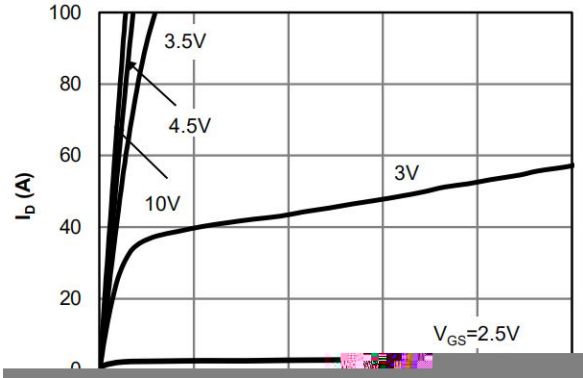
## / Absolute Maximum Ratings($T_a$=25 )

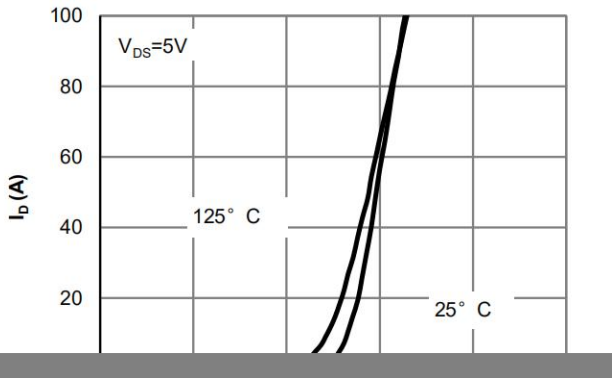
| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 30 | V |
| Continuous Drain Current | | $I_D$ | 56 | A |
| Pulsed Drain Current | | $I_{DM}$ | 168 | A |
| Gate-Source Voltage | | $V_{GS}$ | ± 20 | V |
| Power Dissipation | | $P_D$($T_c$=25 ) | 33 | W |
| Avalanche energy(L=0.5mH) | | $E_{AS}$ | 72 | mJ |
| Avalanche Current(L=0.5mH) | | $I_{AS}$ | 36 | A |
| Junction and Storage Temperature Range | | $T_j$, $T_{stg}$ | -55 to 150 | ℃ |
| Maximum Junction-to-Ambient | t ≤ 10s | RθJA | 30 | ℃/ W |
| | Steady-State | | 54 | |
| Maximum Junction-to-Case | Steady-State | RθJC | 3.8 | |

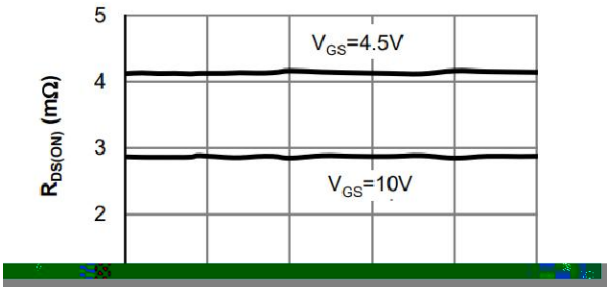
## / Electrical Characteristics(Ta=25 )

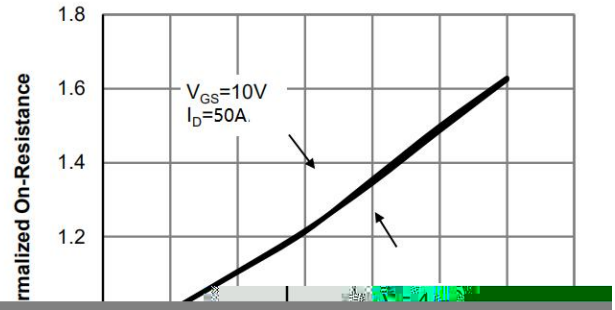
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $I_D$=250uA, $V_{GS}$=0V | 30 | 31 | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=30V, $V_{GS}$=0V | | | 1.0 | uA |
| Gate-Body leakage current | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$= ±20V | | | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=250uA | 1 | 1.8 | 2.5 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$=10V, $I_D$=20A | | 2.9 | 3.1 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$=10A | | 4.1 | 4.8 | |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=1A, $V_{GS}$=0V | | 0.68 | 1 | V |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=25V $V_{GS}$=0V f=1.0MHz | | 3030 | | pF |
| Output Capacitance | $C_{oss}$ | | | 355 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 260 | | |
| Gate resistance | $R_g$ | $V_{GS}$=0V $V_{DS}$=0V f=1MHz | | 3 | | Ω |
| Total Gate Charge | $Q_{g(10V)}$ | $V_{GS}$=10V, $V_{DS}$=15V, $I_D$=20A | | 63 | | nC |
| Total Gate Charge | $Q_{g(4.5V)}$ | | | 29 | | |
| Gate Source Charge | $Q_{gs}$ | | | 9.0 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 9.5 | | |

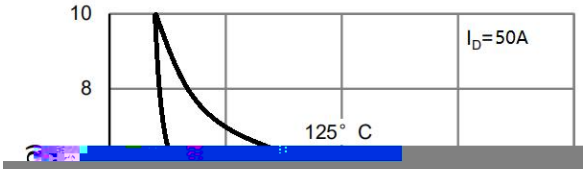
## / Electrical Characteristic Curve

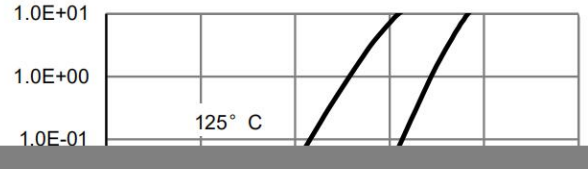


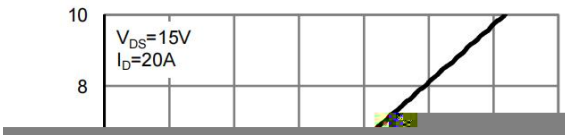



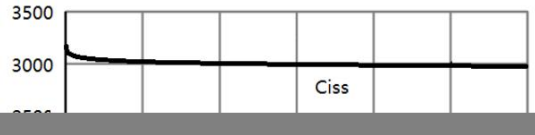



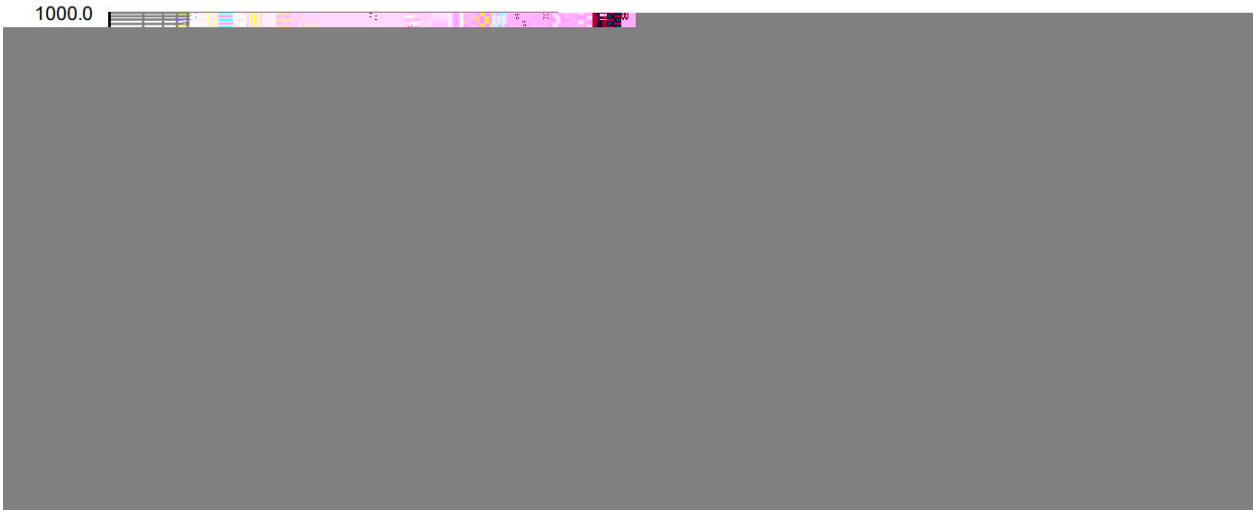



## / Electrical Characteristic Curve

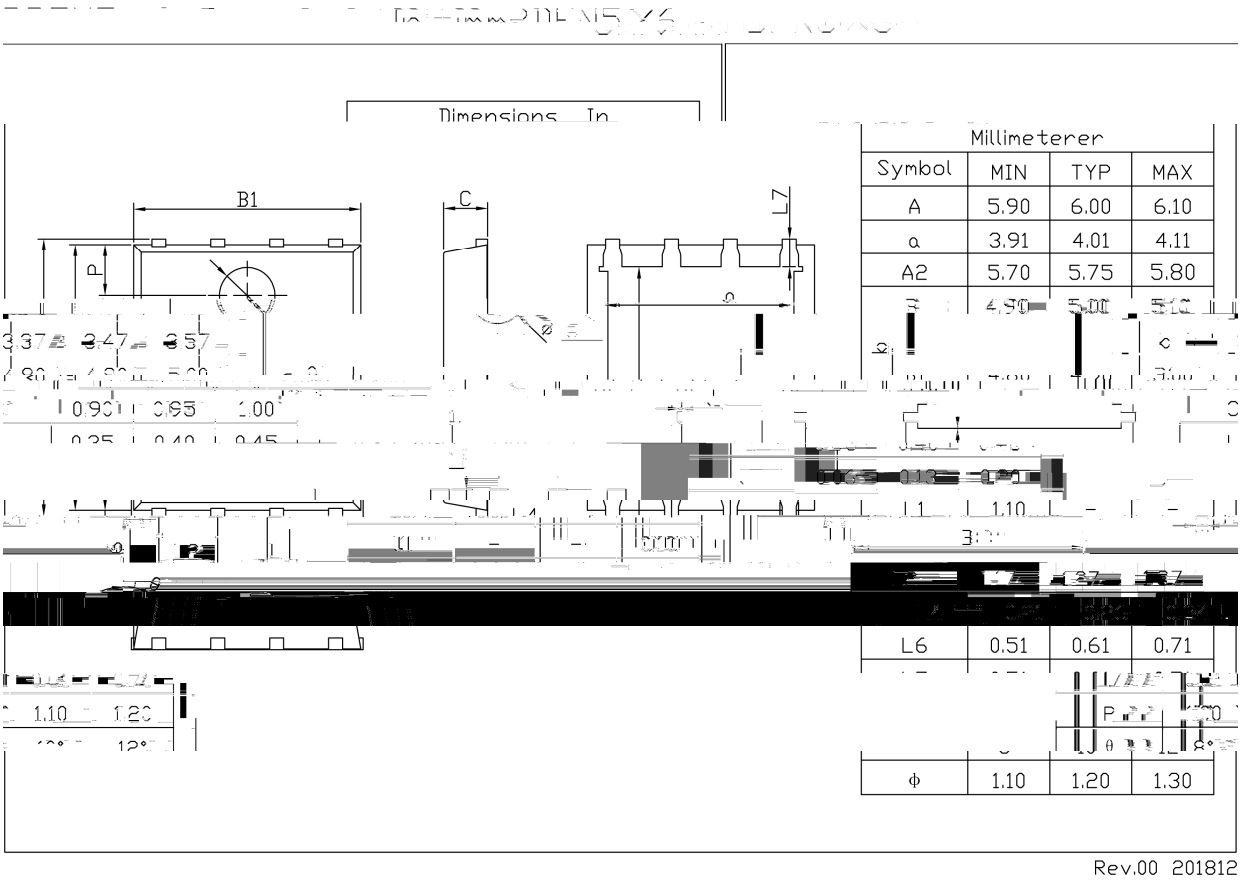


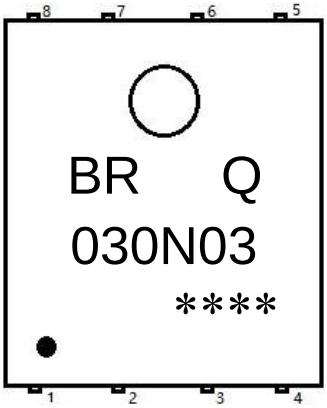






## / Package Dimensions



## / Marking Instructions




BR

Q

030N03

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Note

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|---|---|
| BR | Company Code |
| Q: | Automobile halogen-free product Code |
| 030N03 | Product Type |
| ****: | Lot No. Code, code change with Lot No |

## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)

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Note:

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|---|---|---|---|---|
| 1 | 150 200 | 60 120sec; | 1.Preheating:150~200℃, Time:60~120sec. |
| 2 | 255±5 | 5±0.5sec; | 2.Peak Temp.:255±5℃, Duration:5±0.5sec. |
| 3 | | | |