# PAN26TB02QB

**N-Ch 100V Fast Switching MOSFET**

**$V_{DS}$=100V, $I_D$=4.0A, $RDS_{(ON)}$=100mΩ**

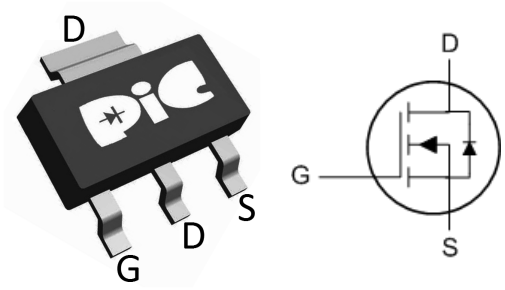
## ➢ General Description

This PAN26TB02QB N-Channel enhancement mode power field effect transistor is the high density trench technology and this advanced technology can provide excellent Rds(On) performance and efficiency for power switching and load switching application., this device also comply with the RoHS and Green Product requirement with full function reliability approved.

## ➢ Feature

- ●Green Device Available
- ●Super Low Gate Charge
- ●Excellent CdV/dt effect decline
- ●Advanced high cell density Trench technology
- ●SOT-223 package design

## ➢ SOT-223




## ➢ Application

- ●Motor and Load Control
- ●Power Management in White LED System
- ●Push Pull Converter
- ●LCD TV Inverter & AD/DC Inverter Systems.

## ➢ Absolute Maximum Ratings

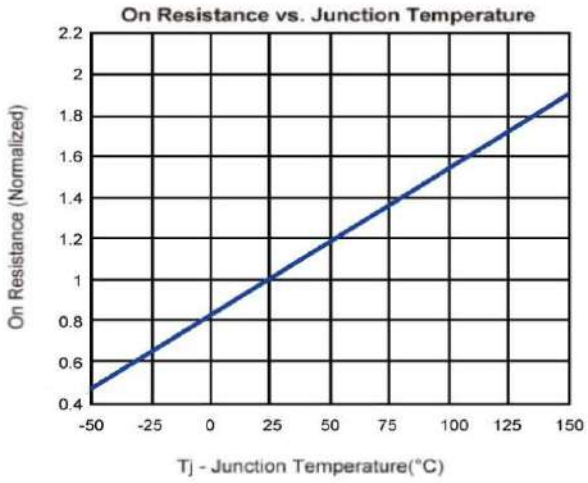
| Parameter | | Symbol | Maximum Ratings | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 100 | V |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current | $T_A$=25℃ | $I_D$ | 4 | A |
| | $T_A$=70℃ | | 3.2 | |
| Pulsed Drain Current | | $I_{DM}$ | 16 | A |
| Maximum Power Dissipation | $T_A$=25℃ | $P_D$ | 3 | W |
| | $T_A$=70℃ | | 1.9 | |
| Operating Junction Temperature | | $T_J$ | 150 | ℃ |
| Storage Temperature Range | | Tstg | -55 to 150 | ℃ |
| Thermal Resistance-Junction to Ambient | | $R_{\theta JA}$ | 42 | ℃/W |

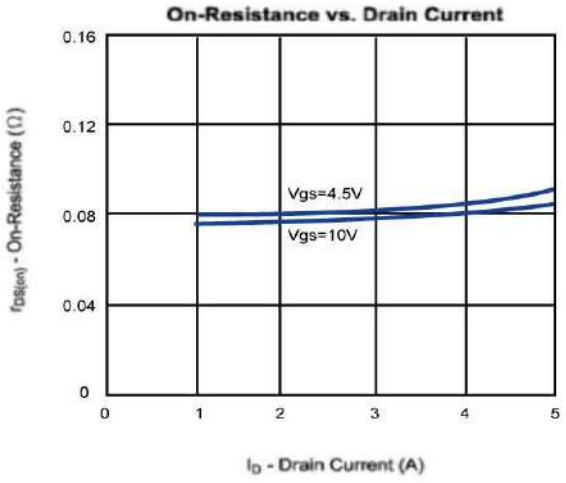
## ➢ Electrical Characteristics ($T_J$=25°C Unless otherwise noted)

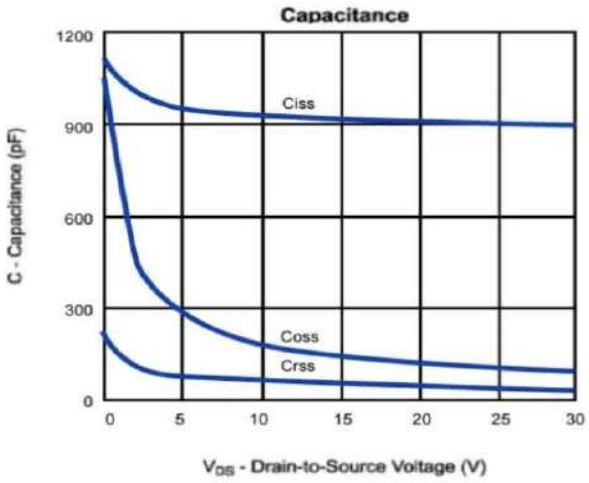
| Symbol | Parameter | Limit | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **STATIC** | | | | | | |
| $V_{BR(DSS)}$ | Drain-Source Breakdown Voltage | $V_{GS}$=0V, $I_D$=250μA | 100 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$=$V_{GS}$, $I_D$=250μA | 1.0 | | 3.0 | V |
| $I_{GSS}$ | Gate Leakage Current | $V_{DS}$=0V, $V_{GS}$=±20V | | | ±100 | nA |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$=100V, $V_{GS}$=0V | | | 1 | μA |
| $R_{DS(ON)}$ | Drain-Source On-Resistance[a] | $V_{GS}$=10V, $I_D$= 3.7A | | 80 | 100 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$= 3.5A | | 85 | 115 | |
| $V_{SD}$ | Diode Forward Voltage | $I_S$=2.5A, $V_{GS}$=0V | | 0.8 | 1.2 | V |
| **DYNAMIC** | | | | | | |
| Qg | Total Gate Charge | $V_{DS}$=80V, $V_{GS}$=10V, $I_D$=2.5A | | 24 | | nC |
| Qg | Total Gate Charge | $V_{DS}$=80V, $V_{GS}$=4.5V, $I_D$=2.5A | | 14 | | |
| Qgs | Gate-Source Charge | | | 3.8 | | |
| Qgd | Gate-Drain Charge | | | 7.5 | | |
| Ciss | Input capacitance | $V_{DS}$=15V, $V_{GS}$=0V, f=1.0MHz | | 905 | | pF |
| Coss | Output Capacitance | | | 145 | | |
| Crss | Reverse Transfer Capacitance | | | 43 | | |
| Rg | Gate Resistance | $V_{DS}$=0V, $V_{GS}$=0V, f=1MHz | | 1 | | Ω |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DD}$=50V, $R_L$ =10Ω<br>$V_{GEN}$=10V, $R_G$=6Ω | | 15 | | ns |
| $t_r$ | Turn-On Rise Time | | | 8 | | |
| $t_{d(off)}$ | Turn-Off Delay Time | | | 47 | | |
| $t_f$ | Turn-Off Fall Time | | | 6 | | |

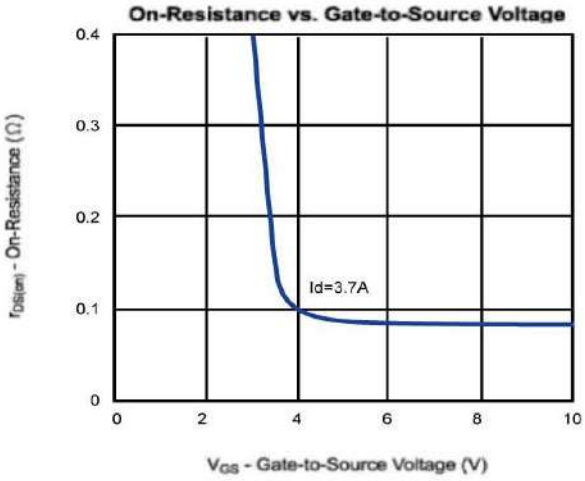
Notes: a. Pulse test: pulse width≦ 300us, duty cycle≦ 2%, Guaranteed by design, not subject to production testing.

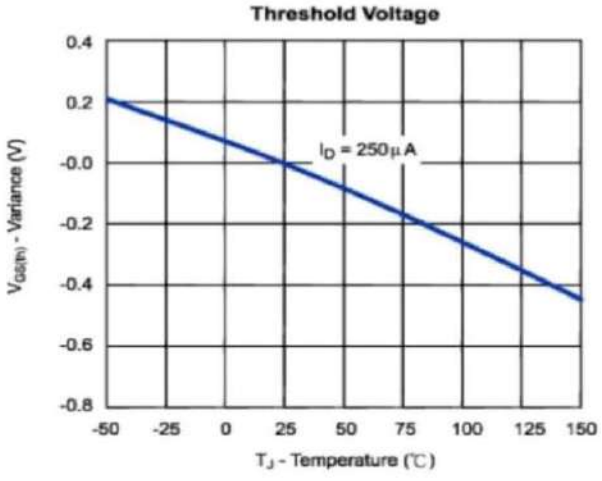
## ➢ Typical Characteristics

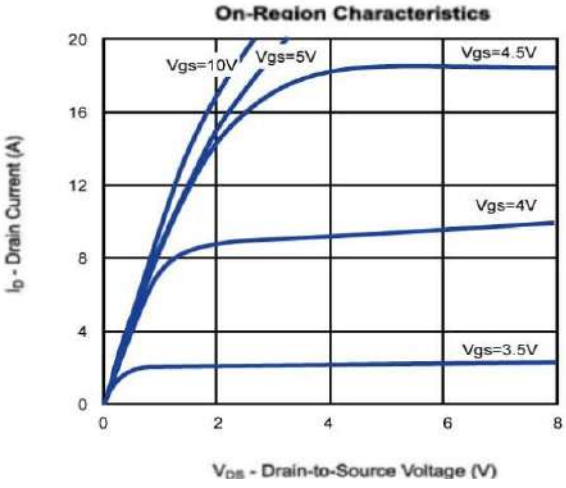


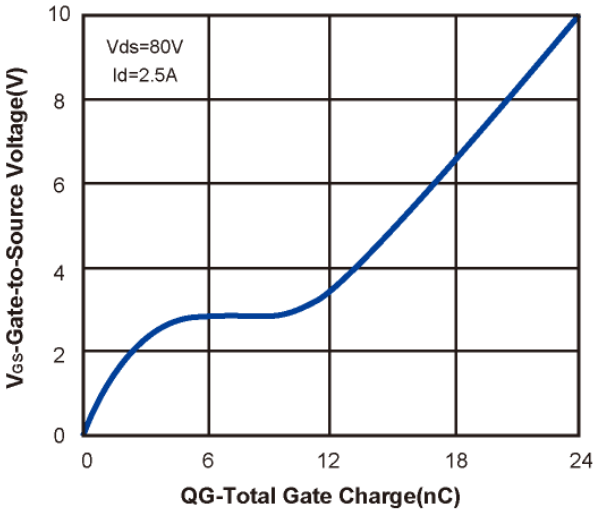



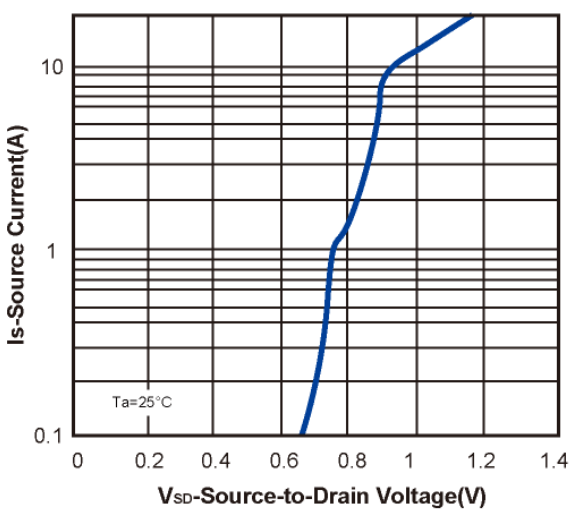



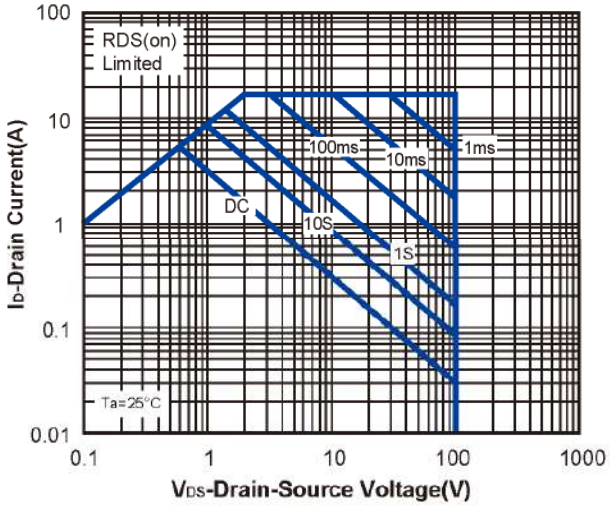
Gate Charge



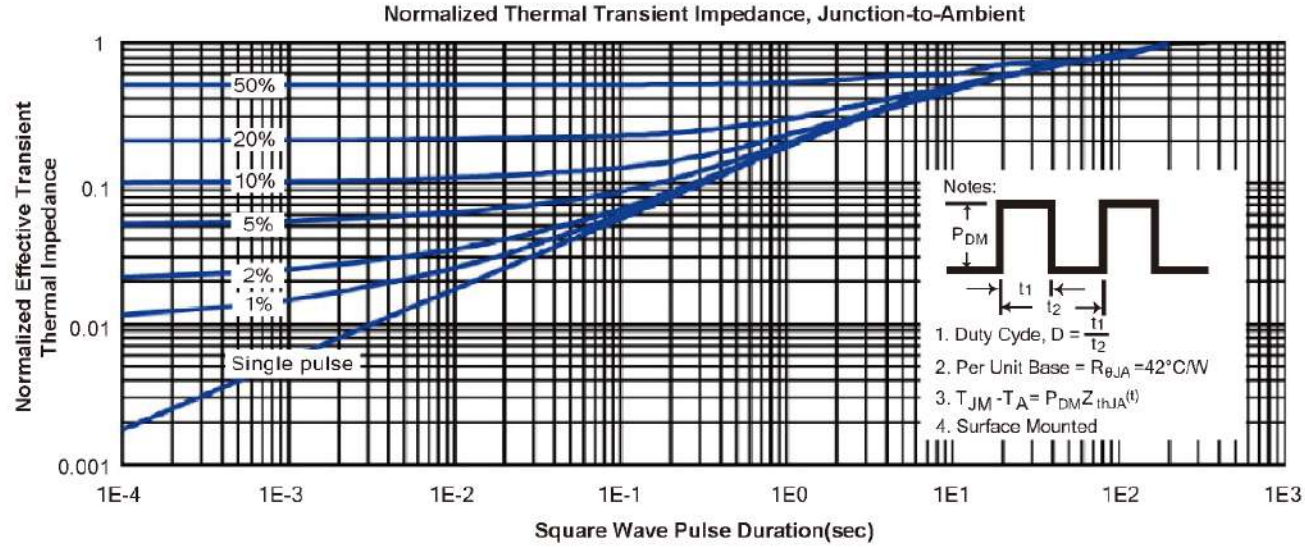

Body-diode characteristics



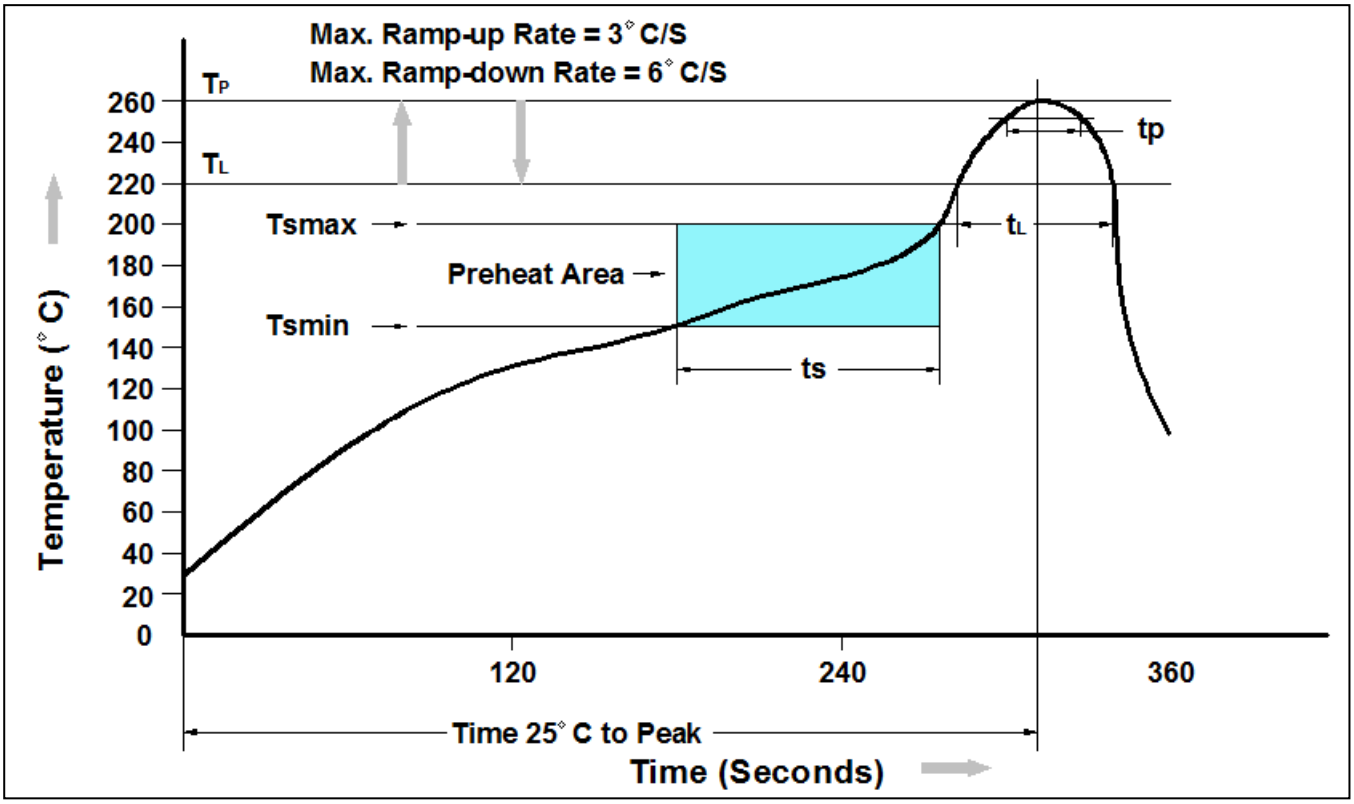

Maximum Forward Biased Safe Operating Area




Normalized Thermal Transient Impedance, Junction-to-Ambient



## ➢ Recommand IR Reflow Soldering Thermal Profile

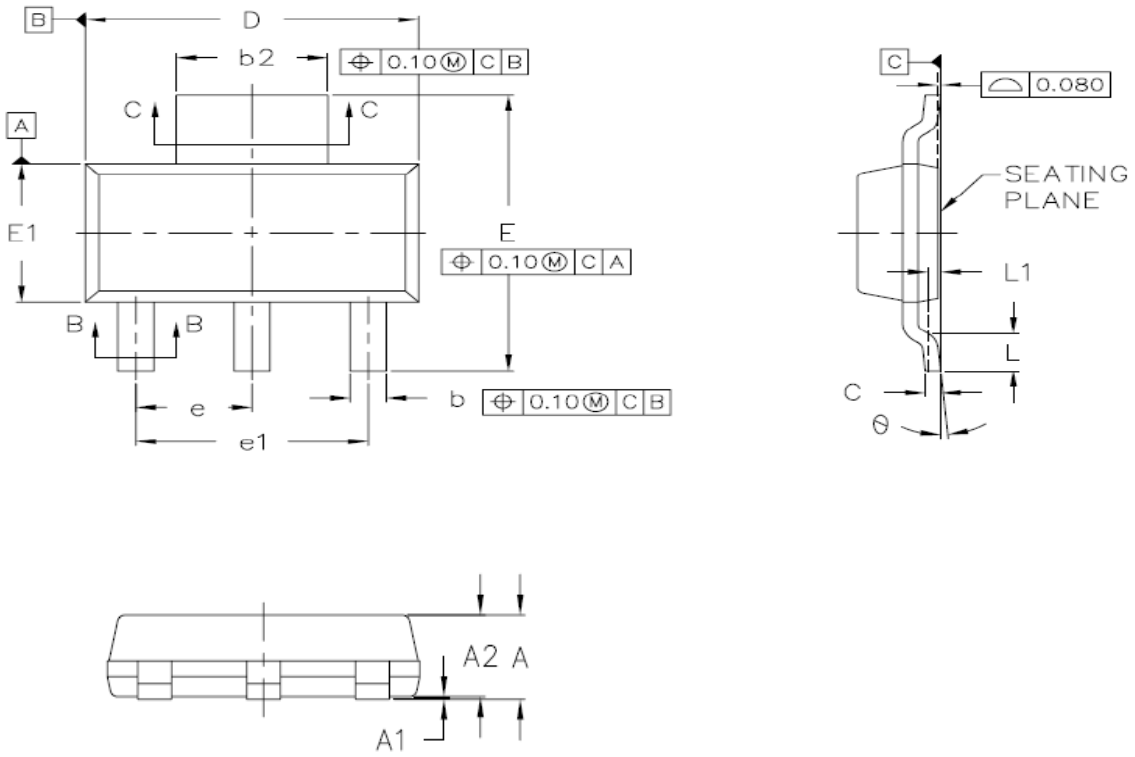



| Profile Feature | Pb-Free Assembly Profile |
|---|---|
| Temperature Min. (Tsmin) | 150°C |
| Temperature Max. (Tsmax) | 200°C |
| Time (ts) from (Tsmin to Tsmax) | 60-120 seconds |
| Average Ramp-up Rate (tL to tP) | 3°C/second max. |
| Liquidous Temperature (TL) | 217°C |
| Time (tL) Maintained Above (TL) | 60 – 150 seconds |
| Peak Temperature | 260°C +0°C / -5°C |
| Time (tP) within 5°C of actual Peak Temperature | 30 seconds |
| Ramp-down Rate (TP to TL) | 6°C/second max |
| Time 25°C to Peak Temperature | 8 minutes max. |

## ➢ Ordering Information

| Part Number | Description | Quantity |
|---|---|---|
| PAN26TB02QB | SOT-223 Reel | 3000 pcs |

## ➢ Package Information ( SOT-223 )




| SYMBOLS | COMMON | | | |
|---|---|---|---|---|
| | MM | | INCH | |
| | MIN. | MAX. | MIN. | MAX. |
| A | —— | 1.80 | —— | 0.071 |
| A1 | 0.02 | 0.10 | 0.001 | 0.004 |
| A2 | 1.50 | 1.70 | 0.059 | 0.067 |
| b | 0.66 | 0.84 | 0.026 | 0.033 |
| b1 | 0.60 | 0.79 | 0.024 | 0.031 |
| b2 | 2.90 | 3.10 | 0.114 | 0.122 |
| b3 | 2.84 | 3.05 | 0.112 | 0.120 |
| c | 0.23 | 0.35 | 0.009 | 0.014 |
| c1 | 0.23 | 0.33 | 0.009 | 0.013 |
| D | 6.30 | 6.70 | 0.248 | 0.264 |
| E | 6.70 | 7.30 | 0.264 | 0.287 |
| E1 | 3.30 | 3.70 | 0.130 | 0.146 |
| e | 2.30 BSC. | | 0.091 BSC. | |
| e1 | 4.60 BSC. | | 0.182 BSC. | |
| L | 0.81 | —— | 0.032 | —— |
| L1 | 0.25 BSC. | | 0.010 BSC. | |
| θ | 0° | 10° | 0° | 10° |

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