# PAN3032B

**N-Ch 30V Fast Switching MOSFET**

**$V_{DS}$=30V, $I_D$=0.7A, $R_{DS(ON)}$=440mΩ**

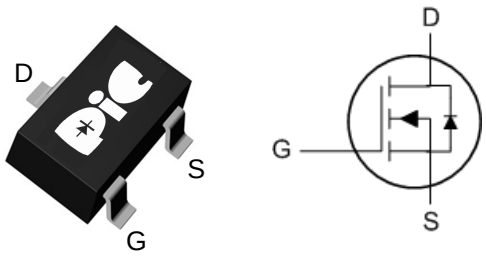
## ➢ General Description

This PAN3032B 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

- ●Low Offset (Error) Voltage
- ●Low-Voltage Operation
- ●High-Speed Circuits
- ●Low Battery Voltage Operation
- ●SOT-523 package design

## ➢ SOT-523




## ➢ Application

- ●Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- ●Battery Operated Systems
- ●Power Supply Converter Circuits
- ●Load/Power Switching Smart Phones,Pagers

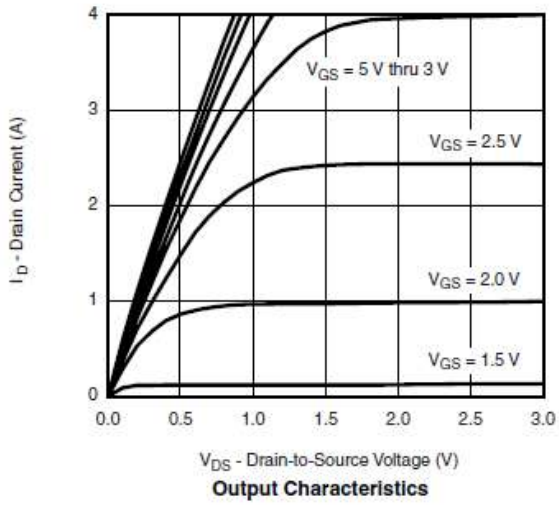
## ➢ Absolute Maximum Ratings

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | 30 | V |
| Gate –Source Voltage | | $V_{GSS}$ | ±12 | V |
| Continuous Drain Current($T_J$=150℃) | $T_A$=25℃ | $I_D$ | 0.7 | A |
| | $T_A$=70℃ | | 0.4 | |
| Pulsed Drain Current | | $I_{DM}$ | 1.0 | A |
| Continuous Source Current(Diode Conduction) | | $I_S$ | 0.3 | A |
| Power Dissipation | $T_A$=25℃ | $P_D$ | 0.27 | W |
| | $T_A$=70℃ | | 0.16 | |
| Operating Junction Temperature | | $T_J$ | -55/150 | ℃ |
| Storage Temperature Range | | $T_{STG}$ | -55/150 | ℃ |

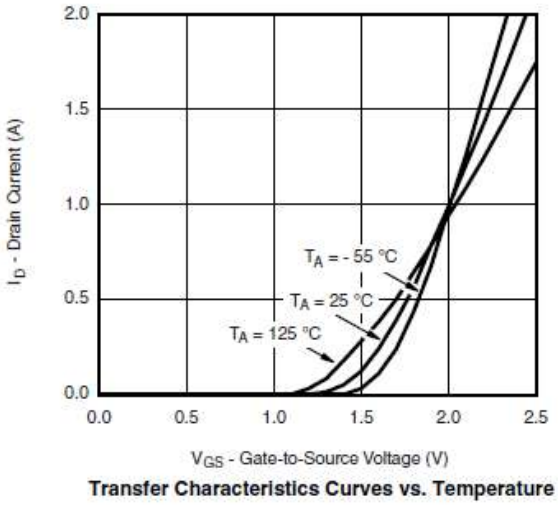
## ➢ Electrical Characteristics ($T_A$=25°C Unless otherwise noted)

| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V,$I_D$=250uA | 30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$,$I_D$=250uA | 0.5 | | 1.0 | |
| Gate Leakage Current | $I_{GSS}$ | $V_{DS}$=0V,$V_{GS}$=±12V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=24V,$V_{GS}$=0V | | | 1 | uA |
| | | $V_{DS}$=24V,$V_{GS}$=0V $T_J$=85℃ | | | 5 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}$≧ 5V,$V_{GS}$=4.5V | 0.7 | | | A |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=4.5V,$I_D$=0.6A | | 350 | 440 | mΩ |
| | | $V_{GS}$=2.5V,$I_D$=0.5A | | 430 | 500 | |
| | | $V_{GS}$=1.8V,$I_D$=0.4A | | 680 | 750 | |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=10V,$I_D$=0.4A | | 1 | | S |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=0.15A,$V_{GS}$=0V | | 0.6 | 1.2 | V |
| **Dynamic** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=15V,$V_{GS}$=0V f=1MHz | | 85 | | pF |
| Output Capacitance | $C_{oss}$ | | | 25 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 15 | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=15V,$V_{GS}$=4.5V $I_D$≡0.6A | | 1.4 | 1.8 | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 0.3 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 0.6 | | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}$=15V,$R_L$=20Ω $I_D$≡0.5A,$V_{GEN}$=4.5V $R_G$=1Ω | | 15 | 25 | ns |
| | $t_r$ | | | 25 | 45 | |
| Turn-Off Time | $t_{d(off)}$ | | | 15 | 25 | |
| | $t_f$ | | | 10 | 20 | |

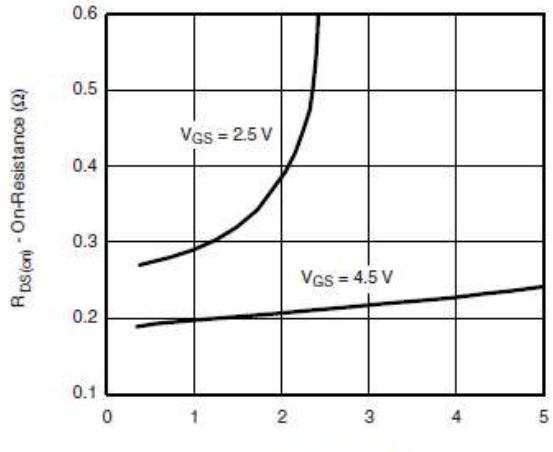
## ➢ Typical Characteristics



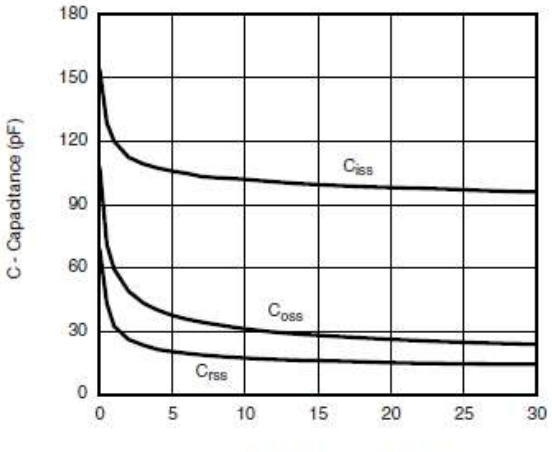

**Output Characteristics**



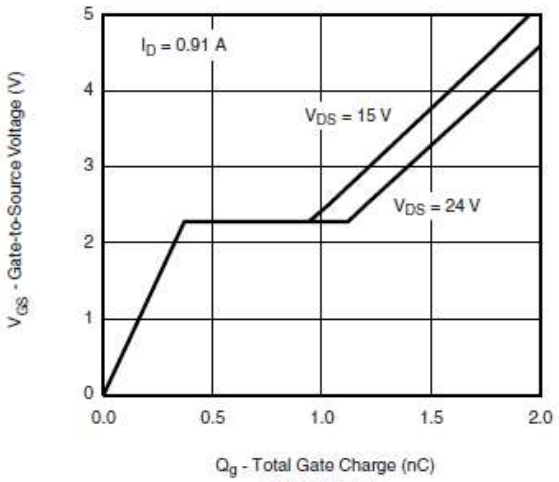

**Transfer Characteristics Curves vs. Temperature**



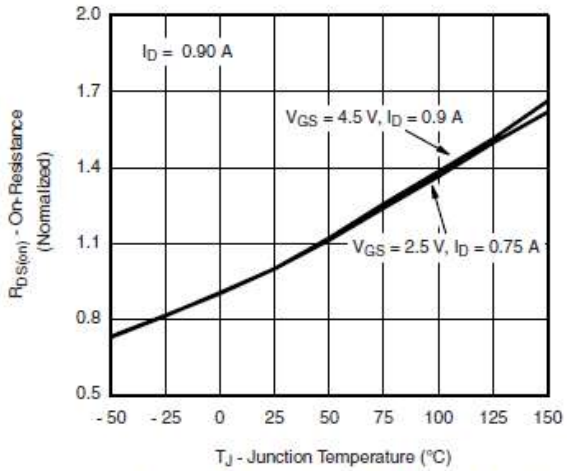

**On-Resistance vs. Drain Current**



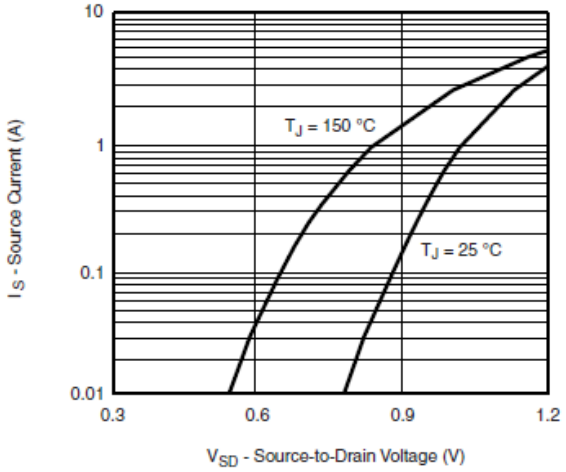

**Capacitance**



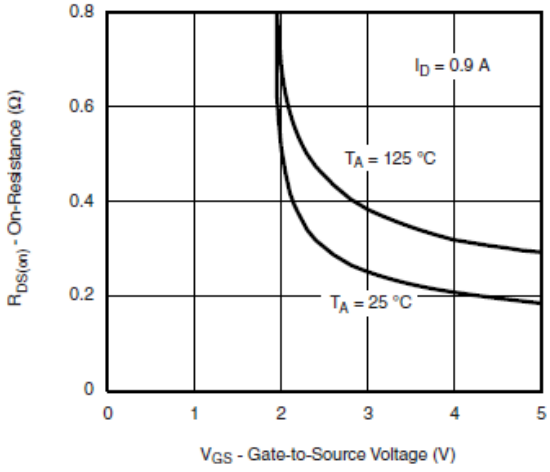

**Gate Charge**



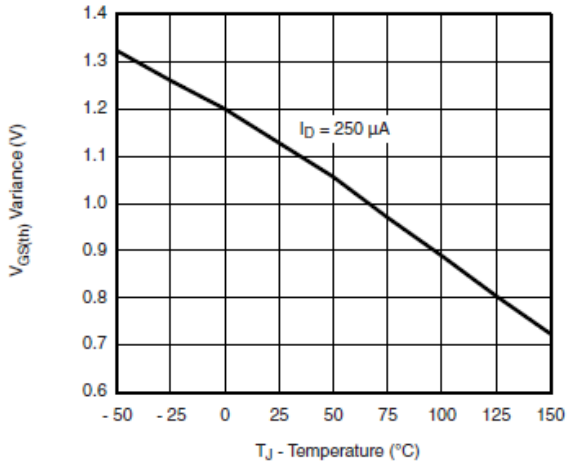

**On-Resistance vs. Junction Temperature**



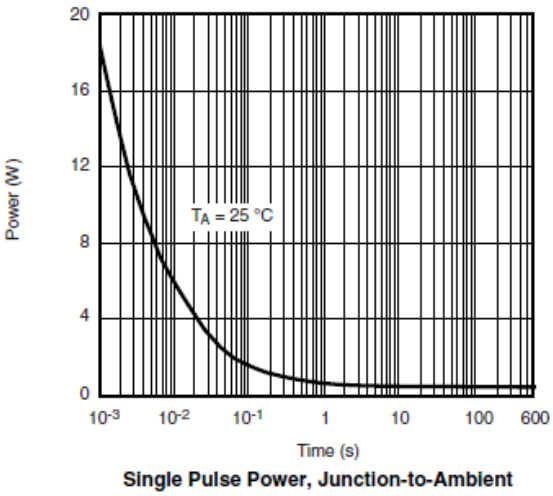

**Forward Diode Voltage vs. Temperature**



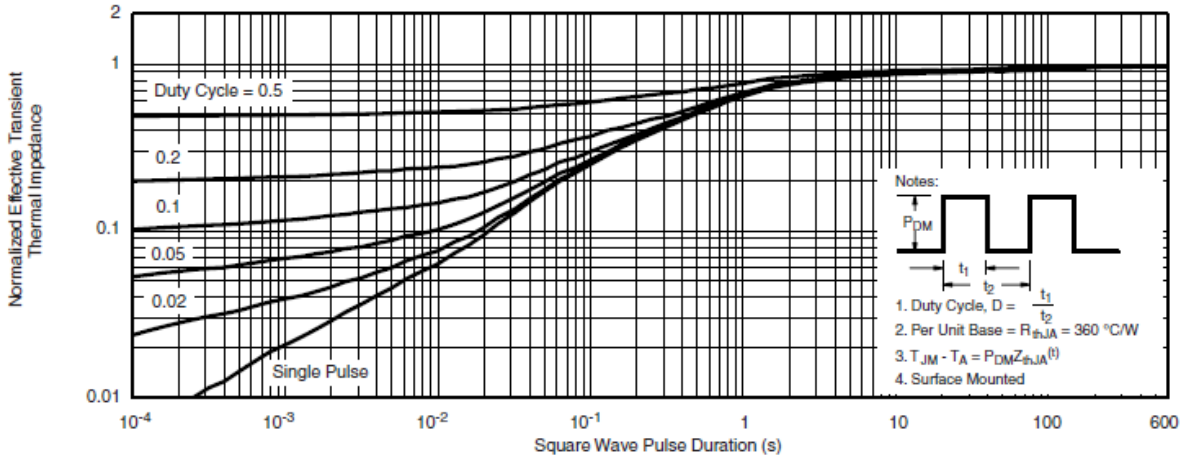

**$R_{DS(on)}$ vs. $V_{GS}$ vs. Temperature**




**Threshold Voltage**

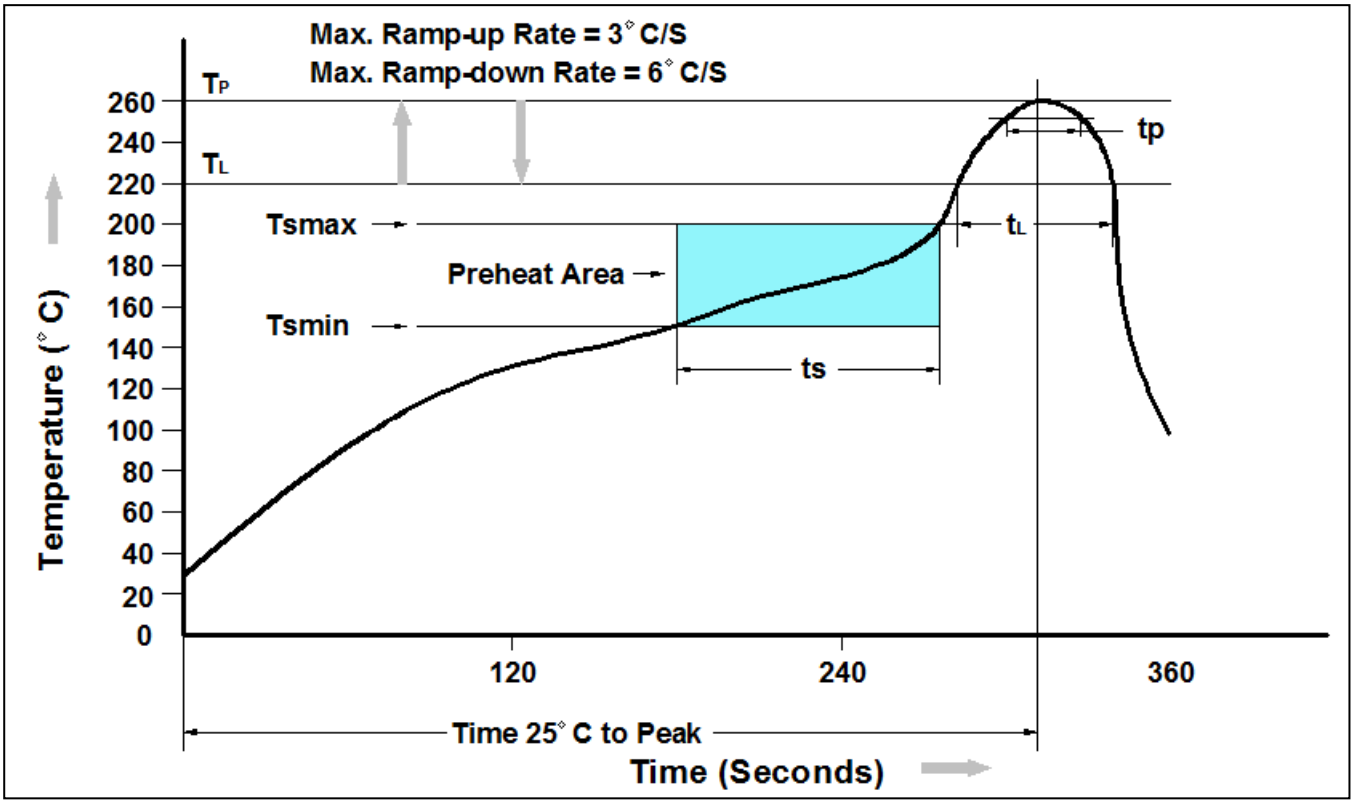



**Single Pulse Power, Junction-to-Ambient**




**Normalized Thermal Transient Impedance, Junction-to-Ambient**

## ➢ Recommand IR Reflow Soldering Thermal Profile

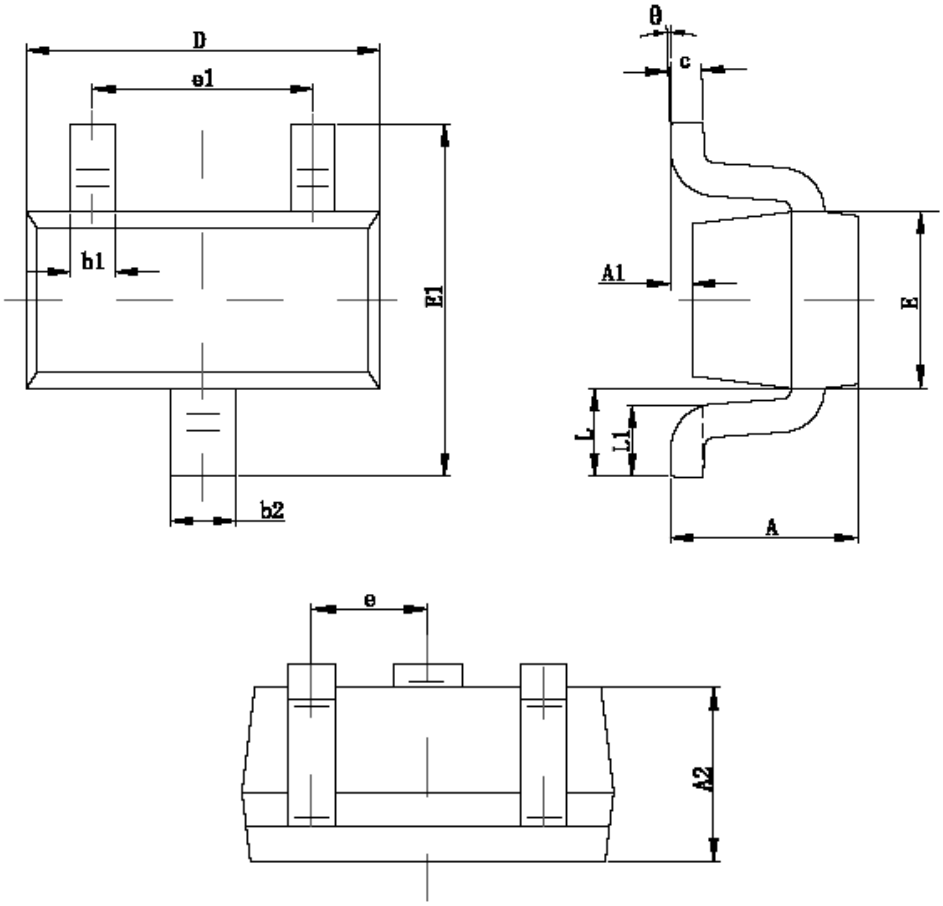



| Profile Feature | Pb-Free Assembly Profile |
|---|---|
| Temperature Min. (Tsmin) | 150°C |
| Temperature Max. (Tsmax) | 200°C |
| Time (ts) from (Tsmin to Tsmax) | 60-120 seconds |
| Average Ramp-up Rate (tL to tP) | 3°C/second max. |
| Liquidous Temperature (TL) | 217°C |
| Time (tL) Maintained Above (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 |
|---|---|---|
| PAN3032B | SOT-523 Reel | 3000 pcs |

## ➢ Package Information ( SOT-523 )




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.700 | 0.900 | 0.028 | 0.035 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.700 | 0.800 | 0.028 | 0.031 |
| b1 | 0.150 | 0.250 | 0.006 | 0.010 |
| b2 | 0.250 | 0.325 | 0.010 | 0.013 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 0.750 | 0.850 | 0.030 | 0.033 |
| E1 | 1.450 | 1.750 | 0.057 | 0.069 |
| e | 0.500 TYP | | 0.020 TYP | |
| e1 | 0.900 | 1.100 | 0.035 | 0.043 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.280 | 0.440 | 0.011 | 0.017 |
| θ | 0° | 4° | 0° | 4° |

# DISCLAIMER

- The information in this document and any product described herein are subject to change without notice and should not be construed as a commitment by Paceleader, Paceleader reserve the right to make changes to the information in this document.

- Though Paceleader make effort to improve product quality and reliability, Product can malfunction and fail due to their inherent electrical sensitivity and vulnerability to physical stress, it is the responsibility of the customer, when utilizing Paceleader products, to comply with the standards of safety in making a safe design for entire system and to avoid situation in which a malfunction or failure., In developing a new designs, customer should ensure that the device which shown in this documents are used within specified operating ranges.

- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by Paceleader for any infringements of patents or other rights of the third parties which may result from its use.