

Power Transistor, PNP, Dual General Purpose 100 V, 3 A

MJK32C

These Bipolar Junction Transistors are designed for general purpose power and switching applications such as regulators, converters and power amplifiers. Housed in advanced LFPAK package (5 x 6 mm) with excellent thermal conduction. Automotive end applications include air bag deployment, power train control units, and instrument clusters.

Features

- Complementary NPN: MJK31C
- NJV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (T_A = 25°C)

| Rating | Symbol | Max | Unit |
|--|-----------------------------------|-------------|------|
| Collector-Emitter Voltage | V_{CEO} | -100 | Vdc |
| Emitter-Base Voltage | V _{EBO} | -5 | Vdc |
| Collector Current - Continuous | I _C | -3 | Α |
| Collector Current - Peak | I _{CM} | -5 | Α |
| Junction and Storage Temperature Range | T _J , T _{stg} | -65 to +150 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

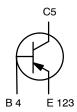
THERMAL CHARACTERISTICS

| Characteristics | Symbol | Max | Unit |
|---|-----------------|-----|------|
| Thermal Resistance, Junction-to-Case per Device (Note 1) | $R_{\theta JC}$ | 2.4 | °C/W |
| Thermal Resistance, Junction-to-Ambient per Device (Note 1) | $R_{\theta JA}$ | 45 | °C/W |
| Total Power Dissipation @ T _A = 25°C (Note 1) | P _D | 2.7 | W |

^{1.} Surface-mounted on FR4 board using a 6 cm², 2 oz. Cu collector pad.

1

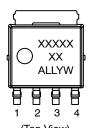
PNP TRANSISTOR 100 V, 3 A





LFPAK4 5x6 CASE 760AB

MARKING DIAGRAM



(Top View)

XXXXXX = Specific Device Code A = Assembly Location

 LL
 = Wafer Lot

 Y
 = Year

 W
 = Work Week

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|--------------|-------------------------|-----------------------|
| MJK32CTWG | LFPAK4 5x6 (Pb-Free) | 3000 / Tape & Reel |
| NJVMJK32CTWG | LFPAK4 5x6 (Pb-Free) | 3000 / Tape & Reel |

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

$\textbf{ELECTRICAL CHARACTERISTICS} \ (T_A = 25^{\circ}C \ unless \ otherwise \ noted)$

| Characteristic | Symbol | Min | Тур | Max | Unit |
|---|-----------------------|----------|-------------|---------|------|
| OFF CHARACTERISTICS | | | | | |
| Collector–Emitter Sustaining Voltage $(I_C = -30 \text{ mA}, I_B = 0)$ | V _{CEO(sus)} | -100 | _ | - | Vdc |
| Collector Cutoff Current $(V_{CE} = Rated V_{CEO}, V_{BE} = 0)$ | Ices | - | - | -20 | μΑ |
| Collector Cutoff Current $(V_{CE} = Rated V_{CEO}, I_B = 0)$ | I _{CEO} | _ | _ | -50 | μΑ |
| Emitter Cutoff Current (V _{EB} = -5 Vdc) | I _{EBO} | _ | _ | -1.0 | mA |
| ON CHARACTERISTICS | | | | | |
| Collector–Emitter Saturation Voltage (I _C = -3 Adc, I _B = -0.375 Adc) | V _{CE(sat)} | _ | _ | -1.2 | Vdc |
| Base–Emitter Saturation Voltage (I _C = -3 Adc, V _{CE} = -4 Vdc) | V _{BE(on)} | _ | _ | -1.8 | Vdc |
| DC Current Gain $(V_{CE} = -4 \text{ Vdc}, I_{C} = -1 \text{ Adc})$ $(V_{CE} = -4 \text{ Vdc}, I_{C} = -3 \text{ Adc})$ | h _{FE} | 25 10 | _ _ _ | - 60 | - |
| DYNAMIC CHARACTERISTICS | | | | | |
| Gain Bandwidth Product ($I_C = 0.5$ Adc, $V_{CE} = 10$ Vdc, $f = 1$ MHz) | f _T | _ | 3 | _ | MHz |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL CHARACTERISTICS

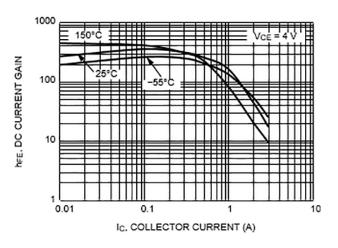


Figure 1. DC Current Gain

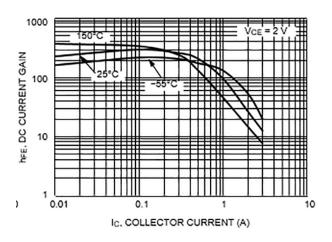


Figure 2. DC Current Gain

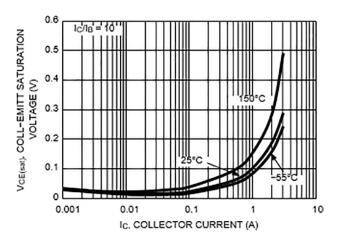


Figure 3. Saturation Voltage $V_{\text{CE(sat)}}$

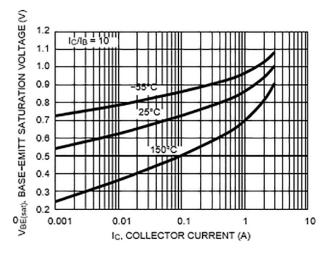


Figure 4. Saturation Voltage V_{BE(sat)}

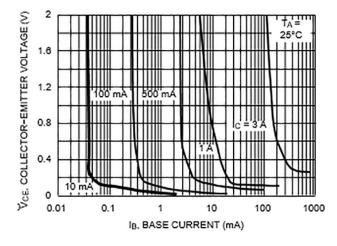


Figure 5. Collector Saturation Region

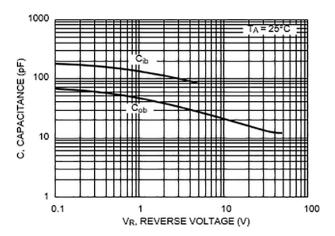


Figure 6. Capacitance

TYPICAL CHARACTERISTICS (continued)

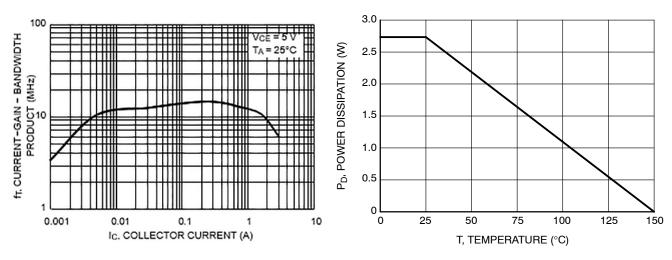


Figure 7. Current-Gain-Bandwidth Product

Figure 8. Power Derating

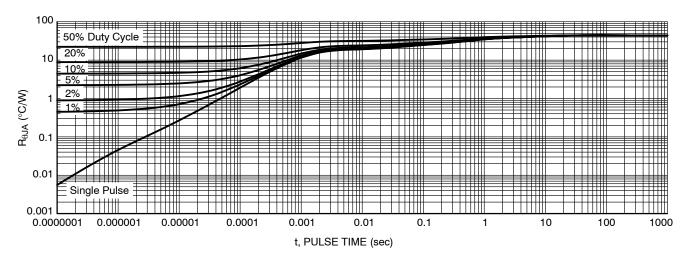
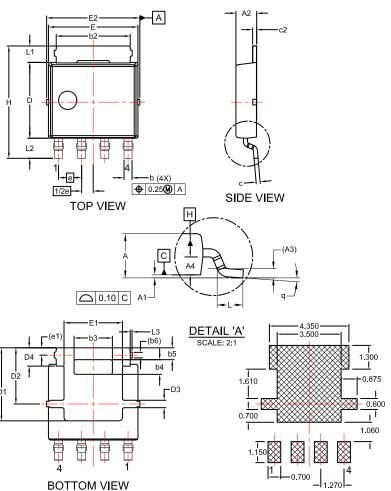


Figure 9. Typical Transient Thermal Response, Junction-to-Case

PACKAGE DIMENSIONS

LFPAK4 5x6 CASE 760AB ISSUE C



RECOMMENDED LAND PATTERN

*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRMD.

NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
- 2. CONTROLLING DIMENSION: MILLIMETERS.
- 3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.150mm PER SIDE.
- 4. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
- 5. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.

| UNIT IN MILLIMETER | | | |
|--------------------|-----------|----------|------|
| DIM | MIN | NOM | MAX |
| Α | 1.10 | 1.20 | 1.30 |
| A1 | 0.00 | 0.08 | 0.15 |
| A2 | 1.10 | 1.15 | 1.20 |
| A3 | (|).25 REF | = |
| A4 | 0.45 | 0.50 | 0.55 |
| b | 0.40 | 0.45 | 0.50 |
| b2 | 3.80 | 4.10 | 4.40 |
| b3 | 2.00 | 2.10 | 2.20 |
| b4 | 0.70 | 0.80 | 0.90 |
| b5 | 0.55 | 0.65 | 0.75 |
| b6 | 0.31 REF | | |
| С | 0.19 | 0.22 | 0.25 |
| c2 | 0.19 | 0.22 | 0.25 |
| D | 4.05 | 4.15 | 4.25 |
| D1 | 3.80 | 4.00 | 4.20 |
| D2 | 3.00 | 3.10 | 3.20 |
| D3 | 0.30 | 0.40 | 0.50 |
| D4 | 0.90 | 1.00 | 1.10 |
| Е | 4.80 | 4.90 | 5.00 |
| E1 | 3.10 | 3.20 | 3.30 |
| E2 | 5.00 | 5.15 | 5.30 |
| е | 1.27 BSC | | |
| 1/2e | 0.635 BSC | | |
| e1 | 0.40 REF | | |
| Н | 6.00 | 6.15 | 6.30 |
| L | 0.40 | 0.65 | 0.85 |
| L1 | 0.80 | 0.90 | 1.00 |
| L2 | 0.90 | 1.10 | 1.30 |
| L3 | 0.00 | 0.10 | 0.20 |
| q | 0° | 4° | 8° |

onsemi, ONSEMI, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any EDA class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer pu

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Email Requests to: orderlit@onsemi.com

onsemi Website: www.onsemi.com

TECHNICAL SUPPORT North American Technical Support: Voice Mail: 1 800-282-9855 Toll Free USA/Canada Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative