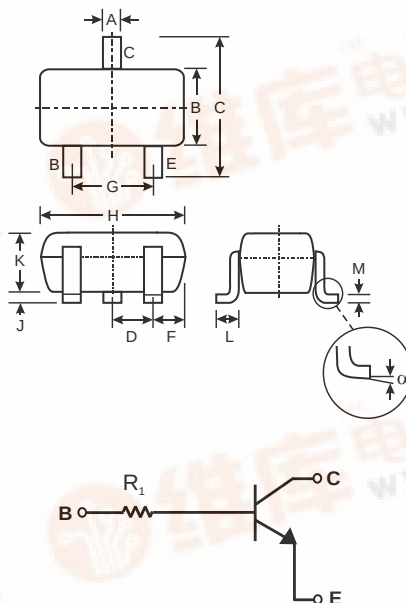


### Features

- Σ Epitaxial Planar Die Construction
- Σ Complementary PNP Types Available (DDTA)
- Σ Built-In Biasing Resistor, R1 only
- Σ Lead Free/RoHS Compliant (Note 2)
- Σ "Green" Device, Note 3 and 4

### Mechanical Data

- Σ Case: SC-59
- Σ Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Σ Moisture Sensitivity: Level 1 per J-STD-020C
- Σ Terminals: Solderable per MIL-STD-202, Method 208
- Σ Lead Free Plating (Matte Tin Finish annealed over Copper leadframe).
- Σ Terminal Connections: See Diagram
- Σ Marking: Date Code and Type Code (See Diagrams & Page 2)
- Σ Ordering Information (See Page 2)
- Σ Weight: 0.008 grams (approximate)



| SC-59                |            |            |
|----------------------|------------|------------|
| Dim                  | Min        | Max        |
| A                    | 0.35       | 0.50       |
| B                    | 1.50       | 1.70       |
| C                    | 2.70       | 3.00       |
| D                    | 0.95       |            |
| G                    | 1.90       |            |
| H                    | 2.90       | 3.10       |
| J                    | 0.013      | 0.10       |
| K                    | 1.00       | 1.30       |
| L                    | 0.35       | 0.55       |
| M                    | 0.10       | 0.20       |
| a                    | 0 $\infty$ | 8 $\infty$ |
| All Dimensions in mm |            |            |

| P/N        | R1 (NOM) | Type Code |
|------------|----------|-----------|
| DDTC113TKA | 1KW      | N01       |
| DDTC123TKA | 2.2KW    | N03       |
| DDTC143TKA | 4.7KW    | N07       |
| DDTC114TKA | 10KW     | N12       |
| DDTC124TKA | 22KW     | N16       |
| DDTC144TKA | 47KW     | N19       |
| DDTC115TKA | 100KW    | N23       |
| DDTC125TKA | 200KW    | N25       |

### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                       | Symbol                            | Value       | Unit |
|------------------------------------------------------|-----------------------------------|-------------|------|
| Collector-Base Voltage                               | V <sub>CBO</sub>                  | 50          | V    |
| Collector-Emitter Voltage                            | V <sub>CEO</sub>                  | 50          | V    |
| Emitter-Base Voltage                                 | V <sub>EBO</sub>                  | 5           | V    |
| Collector Current                                    | I <sub>C</sub> (Max)              | 100         | mA   |
| Power Dissipation                                    | P <sub>d</sub>                    | 200         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 1) | R <sub>qJA</sub>                  | 625         | °C/W |
| Operating and Storage and Temperature Range          | T <sub>j</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

- Note: 1. Mounted on FR4 PC Board with recommended pad layout at <http://www.diodes.com/datasheets/ap02001.pdf>
2. No purposefully added lead.
3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

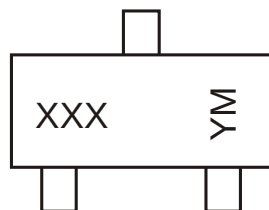
| Characteristic                       | Symbol        | Min       | Typ       | Max       | Unit      | Test Condition                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------|---------------|-----------|-----------|-----------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | 50        | $\approx$ | $\approx$ | V         | $I_C = 50\text{mA}$                                                                                                                                                                                                                                                                                                                                                                                             |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | 50        | $\approx$ | $\approx$ | V         | $I_C = 1\text{mA}$                                                                                                                                                                                                                                                                                                                                                                                              |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$    | 5         | $\approx$ | $\approx$ | V         | $I_E = 50\text{mA}$                                                                                                                                                                                                                                                                                                                                                                                             |
| Collector Cutoff Current             | $I_{CBO}$     | $\approx$ | $\approx$ | 0.5       | nA        | $V_{CB} = 50\text{V}$                                                                                                                                                                                                                                                                                                                                                                                           |
| Emitter Cutoff Current               | $I_{EBO}$     | $\approx$ | $\approx$ | 0.5       | nA        | $V_{EB} = 4\text{V}$                                                                                                                                                                                                                                                                                                                                                                                            |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $\approx$ | $\approx$ | 0.3       | V         | $I_C/I_B = 10\text{mA}/1\text{mA}$ DDTC113TKA<br>$I_C/I_B = 5\text{mA}/0.5\text{mA}$ DDTC123TKA<br>$I_C/I_B = 2.5\text{mA}/.25\text{mA}$ DDTC143TKA<br>$I_C/I_B = 1\text{mA}/.1\text{mA}$ DDTC114TKA<br>$I_C/I_B = 5\text{mA}/0.5\text{mA}$ DDTC124TKA<br>$I_C/I_B = 2.5\text{mA}/.25\text{mA}$ DDTC144TKA<br>$I_C/I_B = 1\text{mA}/0.1\text{mA}$ DDTC115TKA<br>$I_C/I_B = .5\text{mA}/.05\text{mA}$ DDTC125TKA |
| DC Current Transfer Ratio            | $h_{FE}$      | 100       | 250       | 600       | $\approx$ | $I_C = 1\text{mA}$ , $V_{CE} = 5\text{V}$                                                                                                                                                                                                                                                                                                                                                                       |
| Input Resistor ( $R_1$ ) Tolerance   | $DR_1$        | -30       | $\approx$ | +30       | %         | $\approx$                                                                                                                                                                                                                                                                                                                                                                                                       |
| Gain-Bandwidth Product*              | $f_T$         | $\approx$ | 250       | $\approx$ | MHz       | $V_{CE} = 10\text{V}$ , $I_E = -5\text{mA}$ ,<br>$f = 100\text{MHz}$                                                                                                                                                                                                                                                                                                                                            |

\* Transistor - For Reference Only

**Ordering Information** (Note 4 & 5)

| Device         | Packaging | Shipping         |
|----------------|-----------|------------------|
| DDTC113TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC123TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC143TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC114TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC124TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC144TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC115TKA-7-F | SC-59     | 3000/Tape & Reel |
| DDTC125TKA-7-F | SC-59     | 3000/Tape & Reel |

Notes: 4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.  
 5. For Packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**


XXX = Product Type Marking Code, See Table on Page 1  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|
| Code | N    | P    | R    | S    | T    | U    | V    | W    |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3     | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

TYPICAL CURVES - DDTC114TKA

NEW PRODUCT

[查询"DDTC124TKA-7-F"供应商](#)

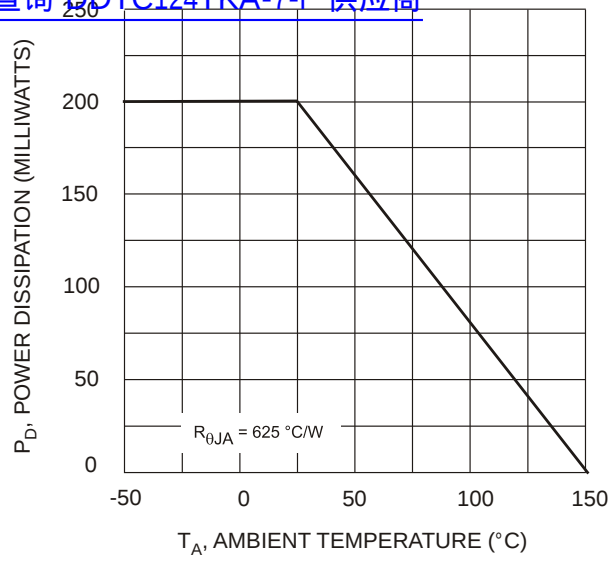


Fig. 1 Derating Curve

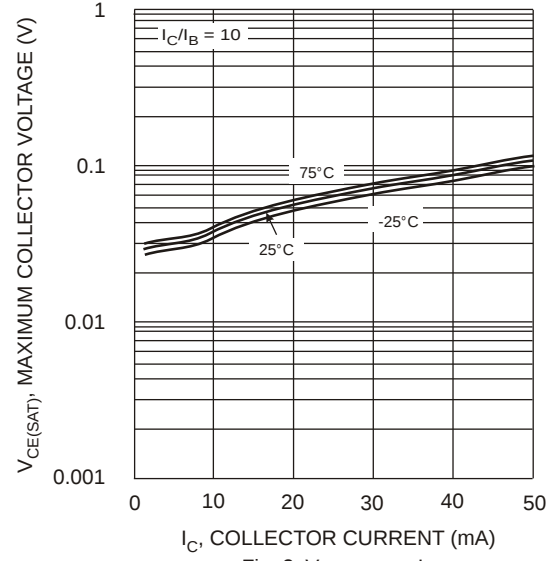


Fig. 2  $V_{CE(SAT)}$  vs.  $I_C$

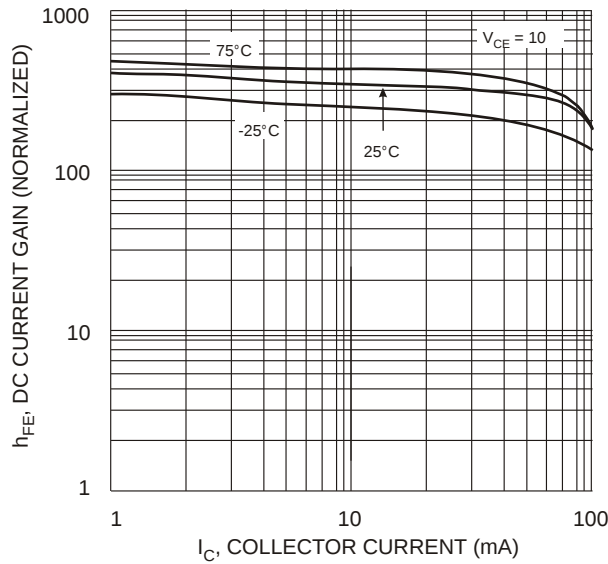


Fig. 3 DC Current Gain

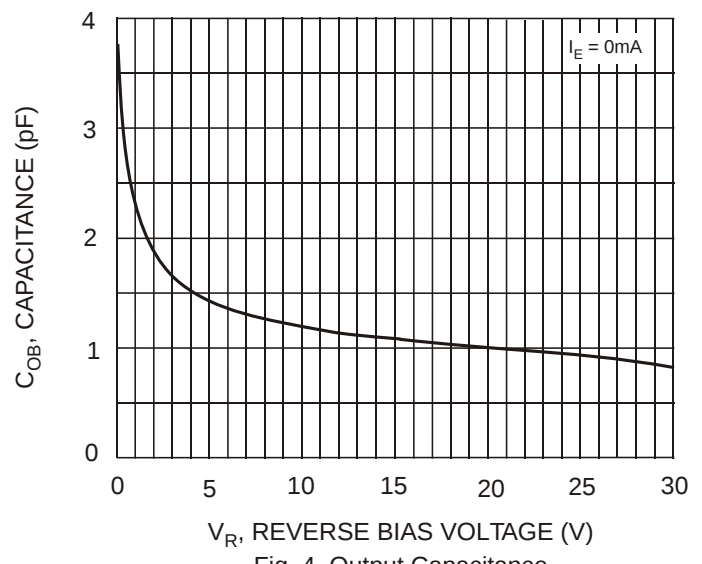


Fig. 4 Output Capacitance

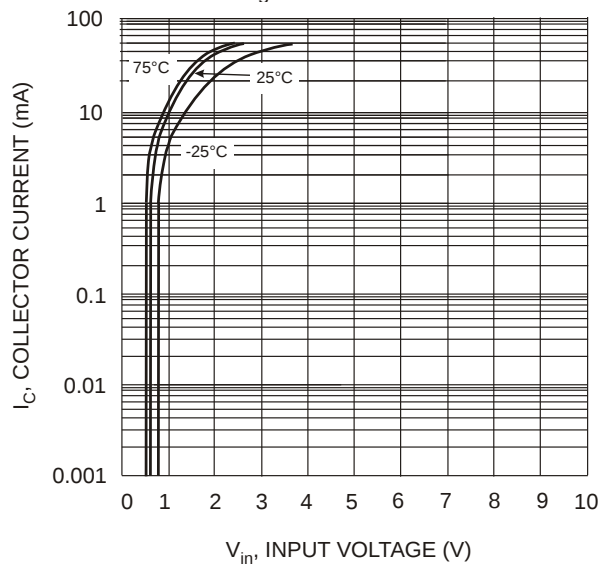


Fig. 5 Collector Current vs. Input Voltage

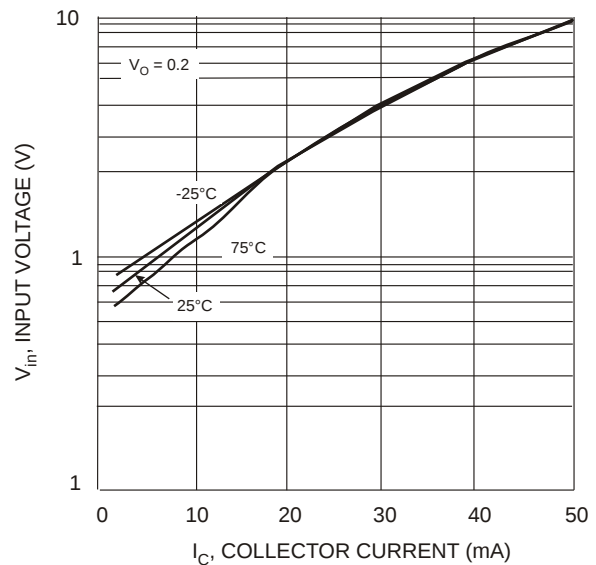


Fig. 6 Input Voltage vs. Collector Current

[查询"DDTC124TKA-7-F"供应商](#)**IMPORTANT NOTICE**

Diodes, Inc. and its subsidiaries reserve the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. Diodes, Inc. does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

**LIFE SUPPORT**

The products located on our website at [www.diodes.com](http://www.diodes.com) are not recommended for use in life support systems where a failure or malfunction of the component may directly threaten life or cause injury without the express written approval of Diodes Incorporated.