

2N6544  
2N6545

**NPN SILICON  
POWER TRANSISTOR**



**TO-3 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N6544, 2N6545 types are Silicon NPN Triple Diffused Mesa Transistors designed for high voltage, high current, high speed switching applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_C=25^\circ\text{C}$ )

Collector-Emitter Voltage  
Collector-Emitter Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Peak Collector Current  
Continuous Emitter Current  
Peak Emitter Current  
Continuous Base Current  
Peak Base Current  
Power Dissipation  
Power Dissipation,  $T_C=100^\circ\text{C}$   
Operating and Storage Junction Temperature  
Thermal Resistance

| SYMBOL         | 2N6544 | 2N6545      | UNITS              |
|----------------|--------|-------------|--------------------|
| $V_{CEV}$      | 650    | 850         | V                  |
| $V_{CEX}$      | 350    | 450         | V                  |
| $V_{CEO}$      | 300    | 400         | V                  |
| $V_{EBO}$      |        | 9.0         | V                  |
| $I_C$          |        | 8.0         | A                  |
| $I_{CM}$       |        | 16          | A                  |
| $I_E$          |        | 16          | A                  |
| $I_{EM}$       |        | 32          | A                  |
| $I_B$          |        | 8.0         | A                  |
| $I_{BM}$       |        | 16          | A                  |
| $P_D$          |        | 125         | W                  |
| $P_D$          |        | 71.5        | W                  |
| $T_J, T_{stg}$ |        | -65 to +200 | $^\circ\text{C}$   |
| $\theta_{JC}$  |        | 1.4         | $^\circ\text{C/W}$ |

**ELECTRICAL CHARACTERISTICS:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL               | TEST CONDITIONS                                                                    | 2N6544 |     | 2N6545 |     | UNITS |
|----------------------|------------------------------------------------------------------------------------|--------|-----|--------|-----|-------|
|                      |                                                                                    | MIN    | MAX | MIN    | MAX |       |
| $I_{CEV}$            | $V_{CE}=\text{Rated } V_{CEV}, V_{BE}=1.5\text{V}$                                 | -      | 0.5 | -      | 0.5 | mA    |
| $I_{CEV}$            | $V_{CE}=\text{Rated } V_{CEV}, V_{BE}=1.5\text{V}, T_C=100^\circ\text{C}$          | -      | 2.5 | -      | 2.5 | mA    |
| $I_{CER}$            | $V_{CE}=\text{Rated } V_{CEV}, R_{BE}=50\Omega, T_C=100^\circ\text{C}$             | -      | 3.0 | -      | 3.0 | mA    |
| $I_{EBO}$            | $V_{EB}=9.0\text{V}$                                                               | -      | 1.0 | -      | 1.0 | mA    |
| $BV_{CEX}$           | $V_{CL}=\text{Rated } V_{CEX}, I_C=4.5\text{A}, T_C=100^\circ\text{C}$             | 350    | -   | 450    | -   | V     |
| $BV_{CEX}$           | $V_{CL}=\text{Rated } V_{CEO}-100\text{V}, I_C=8.0\text{A}, T_C=100^\circ\text{C}$ | 200    | -   | 300    | -   | V     |
| $BV_{CEO}$           | $I_C=100\text{mA}$                                                                 | 300    | -   | 400    | -   | V     |
| $V_{CE(\text{SAT})}$ | $I_C=5.0\text{A}, I_B=1.0\text{A}$                                                 | -      | 1.5 | -      | 1.5 | V     |
| $V_{CE(\text{SAT})}$ | $I_C=8.0\text{A}, I_B=2.0\text{A}$                                                 | -      | 5.0 | -      | 5.0 | V     |
| $V_{CE(\text{SAT})}$ | $I_C=5.0\text{A}, I_B=1.0\text{A}, T_C=100^\circ\text{C}$                          | -      | 2.5 | -      | 2.5 | V     |
| $V_{BE(\text{SAT})}$ | $I_C=5.0\text{A}, I_B=1.0\text{A}$                                                 | -      | 1.6 | -      | 1.6 | V     |
| $V_{BE(\text{SAT})}$ | $I_C=5.0\text{A}, I_B=1.0\text{A}, T_C=100^\circ\text{C}$                          | -      | 1.6 | -      | 1.6 | V     |
| $h_{FE}$             | $V_{CE}=3.0\text{V}, I_C=2.5\text{A}$                                              | 12     | 60  | 12     | 60  |       |
| $h_{FE}$             | $V_{CE}=3.0\text{V}, I_C=5.0\text{A}$                                              | 7.0    | 35  | 7.0    | 35  |       |

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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL    | TEST CONDITIONS                                              | MIN | TYP | MAX | UNITS |
|-----------|--------------------------------------------------------------|-----|-----|-----|-------|
| $f_t$     | $V_{CE}=10\text{V}$ , $I_C=300\text{mA}$ , $f=1.0\text{MHz}$ | 6.0 |     | 28  | MHz   |
| $C_{ob}$  | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$            | 75  |     | 300 | pF    |
| $I_{S/b}$ | $V_{CE}=100\text{V}$ , $t=1.0\text{s}$                       | 0.2 |     |     | A     |

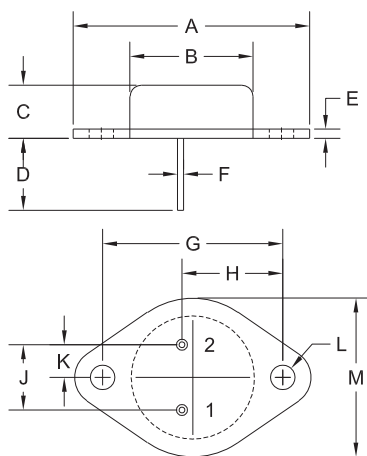
Resistive Load

|       |                                                                                                                                |  |      |               |
|-------|--------------------------------------------------------------------------------------------------------------------------------|--|------|---------------|
| $t_d$ | $V_{CC}=250\text{V}$ , $I_C=5.0\text{A}$ ,<br>$I_{B1}=I_{B2}=1.0\text{A}$ , $t_p=100\mu\text{s}$ ,<br>Duty Cycles $\leq 2.0\%$ |  | 0.05 | $\mu\text{s}$ |
| $t_r$ |                                                                                                                                |  | 1.0  | $\mu\text{s}$ |
| $t_s$ |                                                                                                                                |  | 4.0  | $\mu\text{s}$ |
| $t_f$ |                                                                                                                                |  | 1.0  | $\mu\text{s}$ |

Inductive Load (Clamped)

|       |                                                                                                                               |      |     |               |
|-------|-------------------------------------------------------------------------------------------------------------------------------|------|-----|---------------|
| $t_s$ | $V_{CL}=\text{Rated } V_{CEX}$ , $I_C=5.0\text{A}$ ,<br>$I_{B1}=1.0\text{A}$ , $V_{BE}=5.0\text{V}$ , $T_C=100^\circ\text{C}$ |      | 4.0 | $\mu\text{s}$ |
| $t_f$ |                                                                                                                               |      | 0.9 | $\mu\text{s}$ |
| $t_s$ | $V_{CL}=\text{Rated } V_{CEX}$ , $I_C=5.0\text{A}$ ,<br>$I_{B1}=1.0\text{A}$ , $V_{BE}=5.0\text{V}$ , $T_C=25^\circ\text{C}$  | 1.2  |     | $\mu\text{s}$ |
| $t_f$ |                                                                                                                               | 0.18 |     | $\mu\text{s}$ |

**TO-3 CASE - MECHANICAL OUTLINE**



| SYMBOL  | DIMENSIONS |       |             |       |
|---------|------------|-------|-------------|-------|
|         | INCHES     |       | MILLIMETERS |       |
|         | MIN        | MAX   | MIN         | MAX   |
| A       | 1.516      | 1.573 | 38.50       | 39.96 |
| B (DIA) | 0.748      | 0.875 | 19.00       | 22.23 |
| C       | 0.250      | 0.450 | 6.35        | 11.43 |
| D       | 0.433      | 0.516 | 11.00       | 13.10 |
| E       | 0.054      | 0.065 | 1.38        | 1.65  |
| F       | 0.035      | 0.045 | 0.90        | 1.15  |
| G       | 1.177      | 1.197 | 29.90       | 30.40 |
| H       | 0.650      | 0.681 | 16.50       | 17.30 |
| J       | 0.420      | 0.440 | 10.67       | 11.18 |
| K       | 0.205      | 0.225 | 5.21        | 5.72  |
| L (DIA) | 0.151      | 0.172 | 3.84        | 4.36  |
| M       | 0.984      | 1.050 | 25.00       | 26.67 |

TO-3 (REV: R2)

R2

**LEAD CODE:**

- 1) Base
- 2) Emitter
- Case) Collector

**MARKING:**

**FULL PART NUMBER**

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## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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