

CTLT853-M833

**SURFACE MOUNT  
HIGH CURRENT  
NPN SILICON TRANSISTOR**



Top View Bottom View

**TLM833 CASE**



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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CTLT853-M833 is a high performance 6.0A High Current NPN Transistor designed for applications where small size and operational efficiency are prime requirements. With a maximum power dissipation of 4.5W, and a very small package footprint, this device is 80% smaller than a comparable SOT-223 device. This leadless package design has a watts per unit area at least twice that of equivalent package devices.

**MARKING CODE: CHA3**

- PNP Complement: CTLT953-M833

**FEATURES:**

- High Voltage (200V)
- High Thermal Efficiency
- High Current ( $I_C=6.0A$ )
- 3 x 3mm TLM™ case
- Low  $V_{CE(SAT)} = 340mV$  MAX @ 5.0A

**MAXIMUM RATINGS:** ( $T_A=25^\circ C$ )

|                                            | SYMBOL         |             | UNITS        |
|--------------------------------------------|----------------|-------------|--------------|
| Collector-Base Voltage                     | $V_{CBO}$      | 200         | V            |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 100         | V            |
| Emitter-Base Voltage                       | $V_{EBO}$      | 6.0         | V            |
| Continuous Collector Current               | $I_C$          | 6.0         | A            |
| Power Dissipation (Note 1)                 | $P_D$          | 4.5         | W            |
| Power Dissipation (Note 2)                 | $P_D$          | 4.0         | W            |
| Power Dissipation (Note 3)                 | $P_D$          | 2.5         | W            |
| Operating and Storage Junction Temperature | $T_J, T_{stg}$ | -65 to +150 | $^\circ C$   |
| Thermal Resistance (Note 1)                | $\Theta_{JA}$  | 27.78       | $^\circ C/W$ |
| Thermal Resistance (Note 2)                | $\Theta_{JA}$  | 31.25       | $^\circ C/W$ |
| Thermal Resistance (Note 3)                | $\Theta_{JA}$  | 50.00       | $^\circ C/W$ |

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ C$  unless otherwise noted)

| SYMBOL        | TEST CONDITIONS                       | MIN | TYP | MAX  | UNITS   |
|---------------|---------------------------------------|-----|-----|------|---------|
| $I_{CBO}$     | $V_{CB}=150V$                         |     |     | 10   | nA      |
| $I_{CBO}$     | $V_{CB}=150V, T_A=100^\circ C$        |     |     | 1.0  | $\mu A$ |
| $I_{CER}$     | $V_{CE}=150V, R_{BE} \leq 1.0k\Omega$ |     |     | 10   | nA      |
| $I_{EBO}$     | $V_{EB}=6.0V$                         |     |     | 10   | nA      |
| $BV_{CBO}$    | $I_C=100\mu A$                        | 200 | 220 |      | V       |
| $BV_{CER}$    | $I_C=10mA, R_{BE} \leq 1.0k\Omega$    | 200 | 210 |      | V       |
| $BV_{CEO}$    | $I_C=10mA$                            | 100 | 110 |      | V       |
| $BV_{EBO}$    | $I_E=100\mu A$                        | 6.0 | 8.0 |      | V       |
| $V_{CE(SAT)}$ | $I_C=100mA, I_B=5.0mA$                |     | 22  | 50   | mV      |
| $V_{CE(SAT)}$ | $I_C=2.0A, I_B=100mA$                 |     | 135 | 170  | mV      |
| $V_{CE(SAT)}$ | $I_C=5.0A, I_B=500mA$                 |     |     | 340  | mV      |
| $V_{BE(SAT)}$ | $I_C=5.0A, I_B=500mA$                 |     |     | 1.25 | V       |

Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of 75 mm<sup>2</sup>  
(2) FR-4 Epoxy PC Board with copper mounting pad area of 75 mm<sup>2</sup>  
(3) FR-4 Epoxy PC Board with copper mounting pad area of 25 mm<sup>2</sup>

R1 (17-February 2010)

**CTLT853-M833**

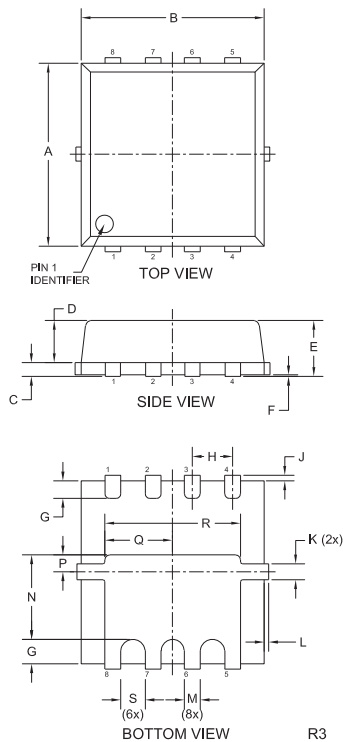
**SURFACE MOUNT**  
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| SYMBOL   | TEST CONDITIONS                                             | MIN | TYP | MAX | UNITS |
|----------|-------------------------------------------------------------|-----|-----|-----|-------|
| $h_{FE}$ | $V_{CE}=2.0\text{V}$ , $I_C=10\text{mA}$                    | 100 |     |     |       |
| $h_{FE}$ | $V_{CE}=2.0\text{V}$ , $I_C=2.0\text{A}$                    | 100 | 200 | 300 |       |
| $h_{FE}$ | $V_{CE}=2.0\text{V}$ , $I_C=4.0\text{A}$                    | 50  | 100 |     |       |
| $h_{FE}$ | $V_{CE}=2.0\text{V}$ , $I_C=10\text{A}$                     | 20  | 30  |     |       |
| $f_T$    | $V_{CE}=10\text{V}$ , $I_C=100\text{mA}$ , $f=50\text{MHz}$ |     | 190 |     | MHz   |
| $C_{ob}$ | $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$           |     | 38  |     | pF    |

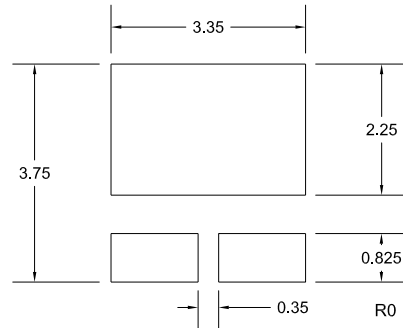
**TLM833 CASE - MECHANICAL OUTLINE**



| SYMBOL | DIMENSIONS |       |             |       |
|--------|------------|-------|-------------|-------|
|        | INCHES     |       | MILLIMETERS |       |
|        | MIN        | MAX   | MIN         | MAX   |
| A      | 0.114      | 0.122 | 2.90        | 3.10  |
| B      | 0.114      | 0.122 | 2.90        | 3.10  |
| C      | 0.006      | 0.010 | 0.15        | 0.25  |
| D      | 0.026      | 0.030 | 0.65        | 0.75  |
| E      | 0.031      | 0.039 | 0.80        | 1.00  |
| F      | 0.000      | 0.002 | 0.00        | 0.05  |
| G      | 0.008      | 0.018 | 0.20        | 0.45  |
| H      | 0.026      |       | 0.65        |       |
| J      | ---        | 0.005 | ---         | 0.125 |
| K      | 0.007      | 0.012 | 0.17        | 0.30  |
| L      | ---        | 0.005 | ---         | 0.125 |
| M      | 0.011      | 0.015 | 0.29        | 0.39  |
| N      | 0.049      | 0.057 | 1.25        | 1.45  |
| P      | 0.006      | 0.014 | 0.15        | 0.35  |
| Q      | 0.040      | 0.048 | 1.01        | 1.21  |
| R      | 0.085      | 0.093 | 2.16        | 2.36  |
| S      | 0.012      | 0.016 | 0.30        | 0.40  |

TLM833 (REV:R3)

**REQUIRED MOUNTING PADS**  
(Dimensions in mm)



Failure to use this mouning pad layout may result in damage to device.

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