

Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[ON Semiconductor](#)
[NSCT817-25LT1G](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

NSCT817-25LT1G, NSCT817-40LT1G

General Purpose Transistors

NPN Silicon

Features

- These are Pb-Free Devices

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--------------------------------|-----------|-------|------------------|
| Collector – Emitter Voltage | V_{CEO} | 45 | V |
| Collector – Base Voltage | V_{CBO} | 50 | V |
| Emitter – Base Voltage | V_{EBO} | 5.0 | V |
| Collector Current – Continuous | I_C | 500 | mA _{dc} |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--|-----------------|-------------|----------------------------|
| Total Device Dissipation FR–5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 225 1.8 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 556 | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 300 2.4 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 417 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature | T_J, T_{stg} | –55 to +150 | $^\circ\text{C}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

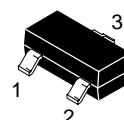
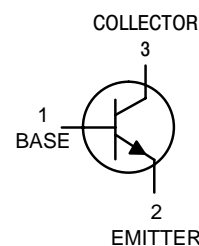
1. FR–5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in 99.5% alumina.



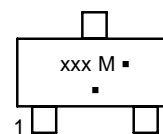
ON Semiconductor®

<http://onsemi.com>



**SOT-23
CASE 318
STYLE 6**

MARKING DIAGRAM



xxx = Specific Device Code
(725 for –25 device)
(74L for –40 device)

M = Date Code*

▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

| Device | Package | Shipping† |
|----------------|---------------------|--------------------|
| NSCT817–25LT1G | SOT–23 (Pb–Free) | 3000 Tape & Reel |
| NSCT817–40LT1G | SOT–23 (Pb–Free) | 3000 Tape & Reel |
| NSCT817–25LT3G | SOT–23 (Pb–Free) | 10,000 Tape & Reel |
| NSCT817–40LT3G | SOT–23 (Pb–Free) | 10,000 Tape & Reel |

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

NSCT817-25LT1G, NSCT817-40LT1G

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

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|---------------|------------------|-------------|-----------------|---------------------|
| OFF CHARACTERISTICS | | | | | |
| Collector-Emitter Breakdown Voltage ($I_C = -10\text{ mA}$) | $V_{(BR)CEO}$ | 45 | — | — | V |
| Collector-Emitter Breakdown Voltage ($V_{EB} = 0$, $I_C = -10\text{ }\mu\text{A}$) | $V_{(BR)CES}$ | 50 | — | — | V |
| Emitter-Base Breakdown Voltage ($I_E = -1.0\text{ }\mu\text{A}$) | $V_{(BR)EBO}$ | 5.0 | — | — | V |
| Collector Cutoff Current ($V_{CB} = 20\text{ V}$) ($V_{CB} = 20\text{ V}$, $T_A = 150^\circ\text{C}$) | I_{CBO} | — — | — — | 100 5.0 | nA μA |
| ON CHARACTERISTICS | | | | | |
| DC Current Gain ($I_C = 100\text{ mA}$, $V_{CE} = 1.0\text{ V}$) ($I_C = 500\text{ mA}$, $V_{CE} = 1.0\text{ V}$) | h_{FE} | 160 250 40 | — — — | 400 600 — | — |
| Collector-Emitter Saturation Voltage ($I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$) | $V_{CE(sat)}$ | — | — | 0.7 | V |
| Base-Emitter On Voltage ($I_C = 500\text{ mA}$, $V_{CE} = 1.0\text{ V}$) | $V_{BE(on)}$ | — | — | 1.2 | V |
| SMALL-SIGNAL CHARACTERISTICS | | | | | |
| Current-Gain-Bandwidth Product ($I_C = 10\text{ mA}$, $V_{CE} = 5.0\text{ Vdc}$, $f = 100\text{ MHz}$) | f_T | 100 | — | — | MHz |
| Output Capacitance ($V_{CB} = 10\text{ V}$, $f = 1.0\text{ MHz}$) | C_{obo} | — | 10 | — | pF |

NSCT817-25LT1G, NSCT817-40LT1G

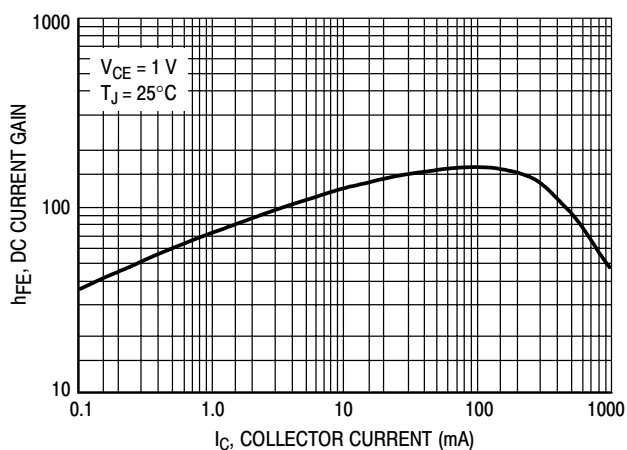


Figure 1. DC Current Gain

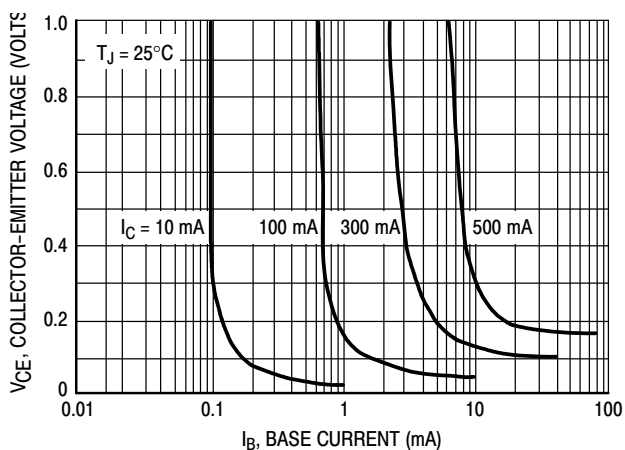


Figure 2. Saturation Region

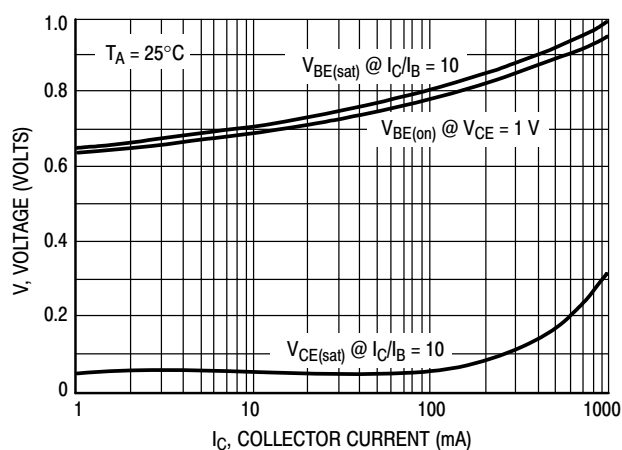


Figure 3. "On" Voltages

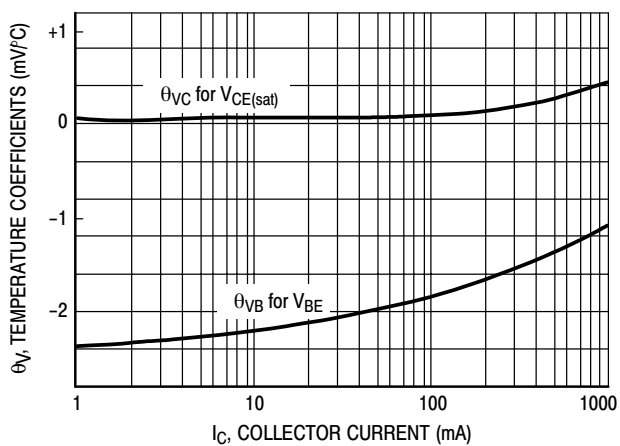


Figure 4. Temperature Coefficients

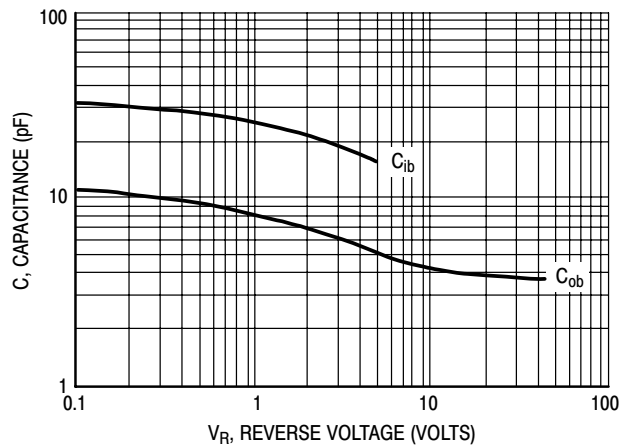


Figure 5. Capacitances

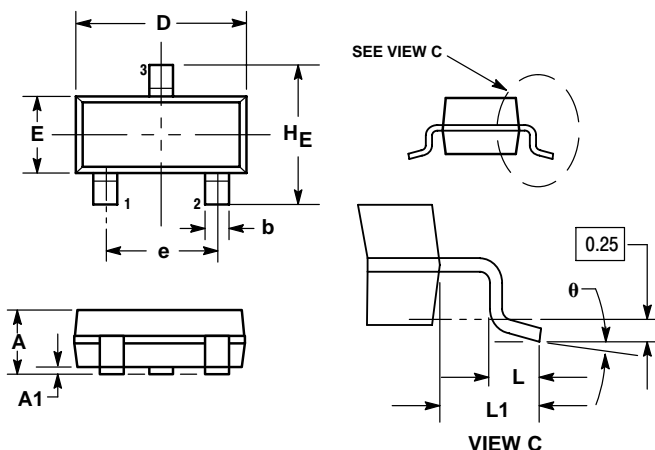
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PACKAGE DIMENSIONS

SOT-23 (TO-236)

CASE 318-08

ISSUE AN



NOTES:

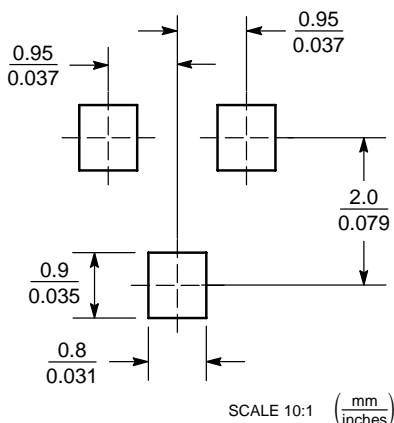
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.040 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.018 | 0.020 |
| c | 0.09 | 0.13 | 0.18 | 0.003 | 0.005 | 0.007 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 1.78 | 1.90 | 2.04 | 0.070 | 0.075 | 0.081 |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.029 |
| HE | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |

STYLE 6:

1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

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