

EMT1DXV6T1, EMT1DXV6T5

Dual General Purpose Transistor

PNP Dual

This transistor is designed for general purpose amplifier applications. It is housed in the SOT-563 which is designed for low power surface mount applications.

Features

- Lead-Free Solder Plating
- Low $V_{CE(SAT)}$, < 0.5 V
- These are Pb-Free Devices

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--------------------------------|-----------|-------|------|
| Collector-Emitter Voltage | V_{CEO} | -60 | V |
| Collector-Base Voltage | V_{CBO} | -50 | V |
| Emitter-Base Voltage | V_{EBO} | -6.0 | V |
| Collector Current - Continuous | I_C | -100 | mAdc |

THERMAL CHARACTERISTICS

| Characteristic (One Junction Heated) | Symbol | Max | Unit |
|---|-----------------|------------------------------------|----------------------------|
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 357 (Note 1) 2.9 (Note 1) | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 350 (Note 1) | $^\circ\text{C/W}$ |
| Characteristic (Both Junctions Heated) | Symbol | Max | Unit |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 500 (Note 1) 4.0 (Note 1) | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 250 (Note 1) | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

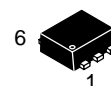
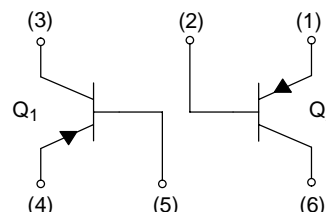
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. FR-4 @ Minimum Pad.



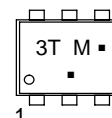
ON Semiconductor®

<http://onsemi.com>



SOT-563
CASE 463A
STYLE 1

MARKING DIAGRAM



3T = Specific Device Code
M = Month Code
■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

EMT1DXV6T1, EMT1DXV6T5

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|----------------------|------|-----|------|------|
| Collector–Base Breakdown Voltage (I _C = –50 μAdc, I _E = 0) | V _{(BR)CBO} | –60 | – | – | Vdc |
| Collector–Emitter Breakdown Voltage (I _C = –1.0 mAdc, I _B = 0) | V _{(BR)CEO} | –50 | – | – | Vdc |
| Emitter–Base Breakdown Voltage (I _E = –50 μAdc, I _E = 0) | V _{(BR)EBO} | –6.0 | – | – | Vdc |
| Collector–Base Cutoff Current (V _{CB} = –30 Vdc, I _E = 0) | I _{CBO} | – | – | –0.5 | nA |
| Emitter–Base Cutoff Current (V _{EB} = –5.0 Vdc, I _B = 0) | I _{EBO} | – | – | –0.5 | μA |
| Collector–Emitter Saturation Voltage (Note 2) (I _C = –50 mAdc, I _B = –5.0 mAdc) | V _{CE(sat)} | – | – | –0.5 | Vdc |
| DC Current Gain (Note 2) (V _{CE} = –6.0 Vdc, I _C = –1.0 mAdc) | h _{FE} | 120 | – | 560 | – |
| Transition Frequency (V _{CE} = –12 Vdc, I _C = –2.0 mAdc, f = 30 MHz) | f _T | – | 140 | – | MHz |
| Output Capacitance (V _{CB} = –12 Vdc, I _E = 0 Adc, f = 1 MHz) | C _{OB} | – | 3.5 | – | pF |

2. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|-------------|----------|--------------------------|
| EMT1DXV6T1 | SOT–563* | 4000 Units / Tape & Reel |
| EMT1DXV6T1G | SOT–563* | 4000 Units / Tape & Reel |
| EMT1DXV6T5 | SOT–563* | 8000 Units / Tape & Reel |
| EMT1DXV6T5G | SOT–563* | 8000 Units / 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.

*This package is inherently Pb–Free.

EMT1DXV6T1, EMT1DXV6T5

TYPICAL ELECTRICAL CHARACTERISTICS

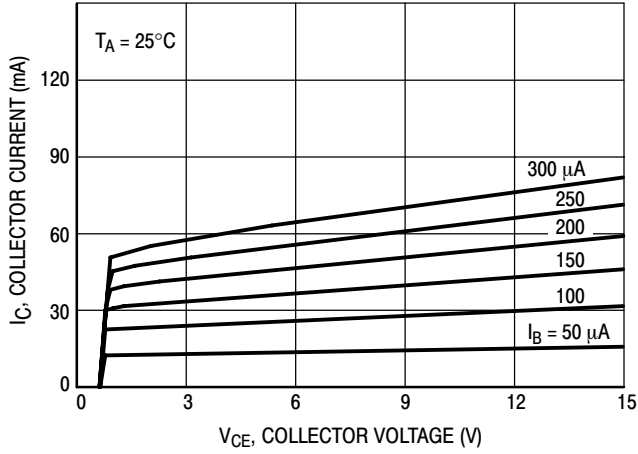


Figure 1. $I_C - V_{CE}$

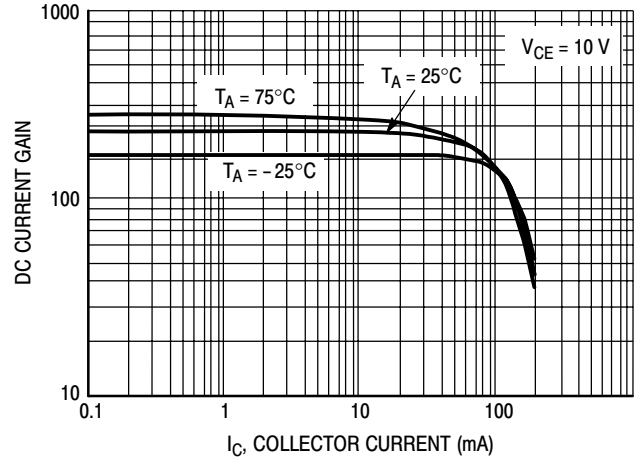


Figure 2. DC Current Gain

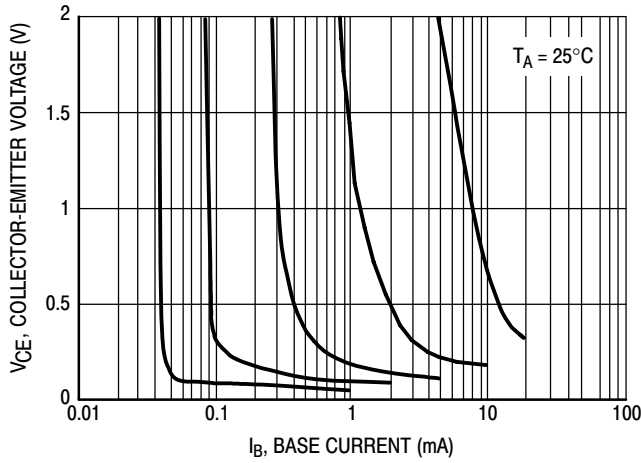


Figure 3. Collector Saturation Region

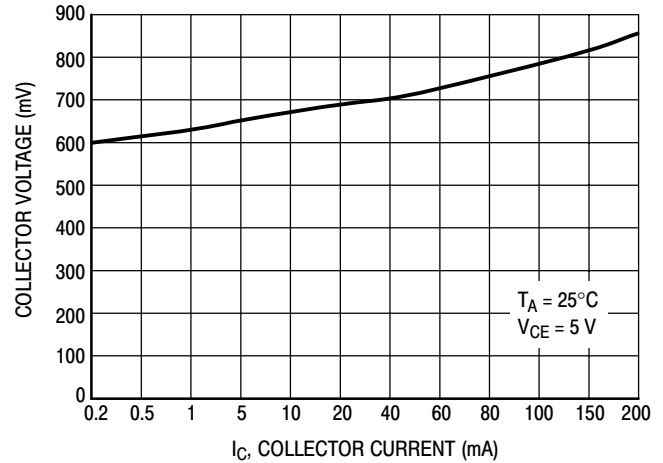


Figure 4. On Voltage

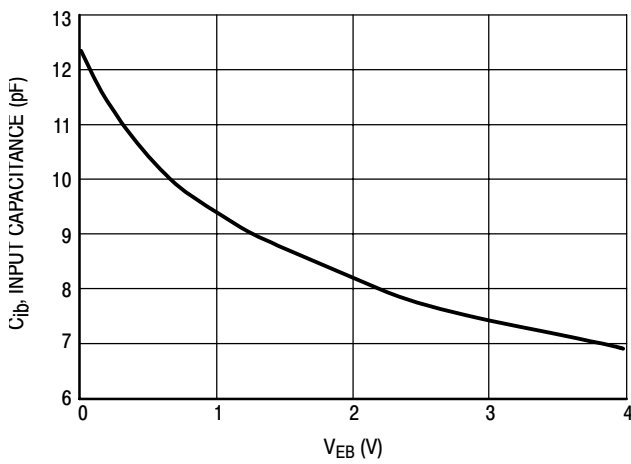


Figure 5. Capacitance

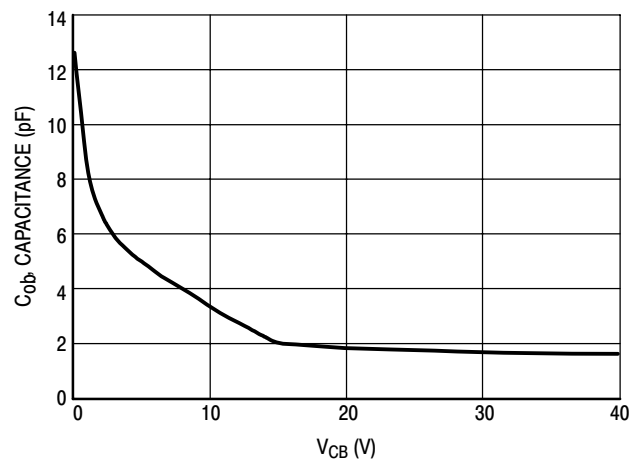
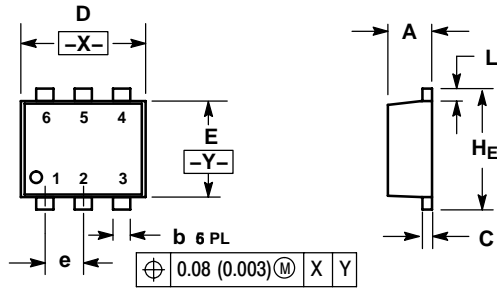


Figure 6. Capacitance

EMT1DXV6T1, EMT1DXV6T5

PACKAGE DIMENSIONS

SOT-563, 6 LEAD
CASE 463A-01
ISSUE F



NOTES:

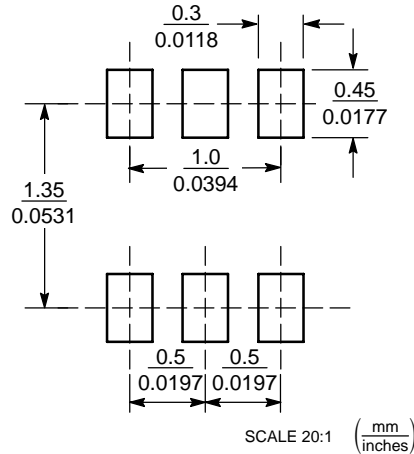
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| DIM | MILLIMETERS | | | INCHES | | |
|----------------|-------------|------|------|----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.50 | 0.55 | 0.60 | 0.020 | 0.021 | 0.023 |
| b | 0.17 | 0.22 | 0.27 | 0.007 | 0.009 | 0.011 |
| C | 0.08 | 0.12 | 0.18 | 0.003 | 0.005 | 0.007 |
| D | 1.50 | 1.60 | 1.70 | 0.059 | 0.062 | 0.066 |
| E | 1.10 | 1.20 | 1.30 | 0.043 | 0.047 | 0.051 |
| e | 0.5 BSC | | | 0.02 BSC | | |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| H _E | 1.50 | 1.60 | 1.70 | 0.059 | 0.062 | 0.066 |

STYLE 1:

- PIN 1. EMITTER 1
2. BASE 1
3. COLLECTOR 2
4. EMITTER 2
5. BASE 2
6. COLLECTOR 1

SOLDERING FOOTPRINT*



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

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