EMZ1DXV6T1, EMZ1DXV6T5

Dual General Purpose Transistors

NPN/PNP Dual (Complementary)

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

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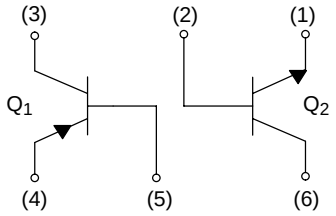
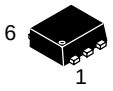




SOT−563
CASE 463A
STYLE 1

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

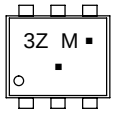
THERMAL CHARACTERISTICS

Characteristic (One Junction Heated)	Symbol	Max	Unit
Total Device Dissipation T_A = 25°C Derate above 25°C	P_D	 357 (Note 1) 2.9 (Note 1)	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	350 (Note 1)	°C/W
Characteristic (Both Junctions Heated)	**Symbol**	**Max**	**Unit**
Total Device Dissipation T_A = 25°C Derate above 25°C	P_D	 500 (Note 1) 4.0 (Note 1)	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	250 (Note 1)	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°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−4 @ Minimum Pad.

MARKING DIAGRAM



3Z = 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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic	Symbol	Min	Typ	Max	Unit
Q1: PNP					
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
Q2: NPN					
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)	$V_{(BR)EBO}$	7.0	−	−	Vdc
Collector-Base Cutoff Current (V_{CB} = 60 Vdc, I_E = 0)	I_{CBO}	−	−	0.5	μA
Emitter-Base Cutoff Current (V_{EB} = 7.0 Vdc, I_B = 0)	I_{EBO}	−	−	0.5	μA
Collector-Emitter Saturation Voltage (Note 3) (I_C = 50 mAdc, I_B = 5.0 mAdc)	$V_{CE(sat)}$	−	−	0.4	Vdc
DC Current Gain (Note 3) (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	−	180	−	MHz
Output Capacitance (V_{CB} = 12 Vdc, I_C = 0 Adc, f = 1 MHz)	C_{OB}	−	2.0	−	pF

2. Pulse Test: Pulse Width ≤ 300 μs, D.C. ≤ 2%.
3. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

ORDERING INFORMATION

Device	Package	Shipping†
EMZ1DXV6T1	SOT−563*	4000 Units / Tape & Reel
EMZ1DXV6T1G	SOT−563*	4000 Units / Tape & Reel
EMZ1DXV6T5	SOT−563*	8000 Units / Tape & Reel
EMZ1DXV6T5G	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.

TYPICAL ELECTRICAL CHARACTERISTICS − Q1, PNP

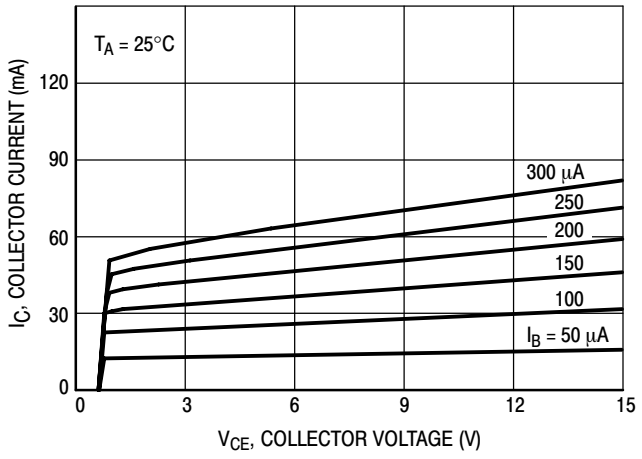


Figure 1. I_C − V_{CE}

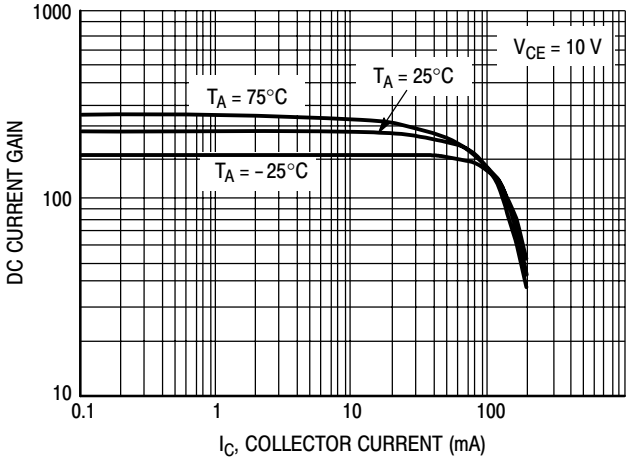


Figure 2. DC Current Gain

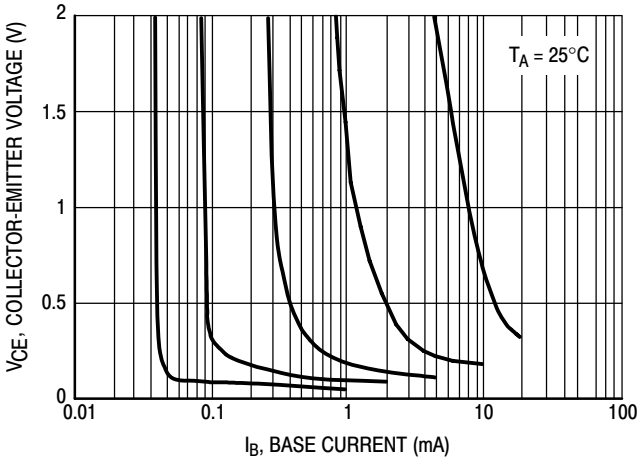


Figure 3. Collector Saturation Region

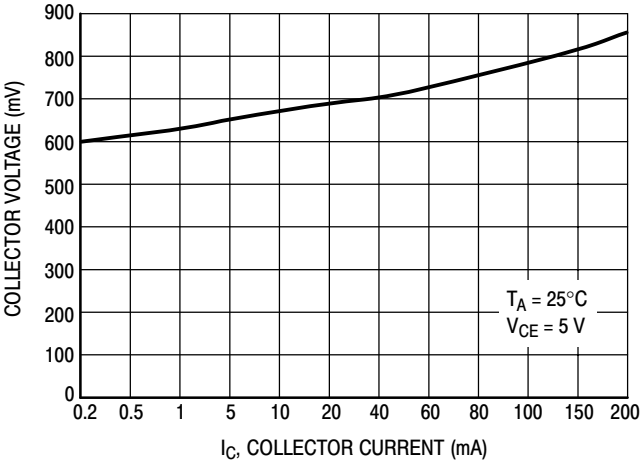


Figure 4. On Voltage

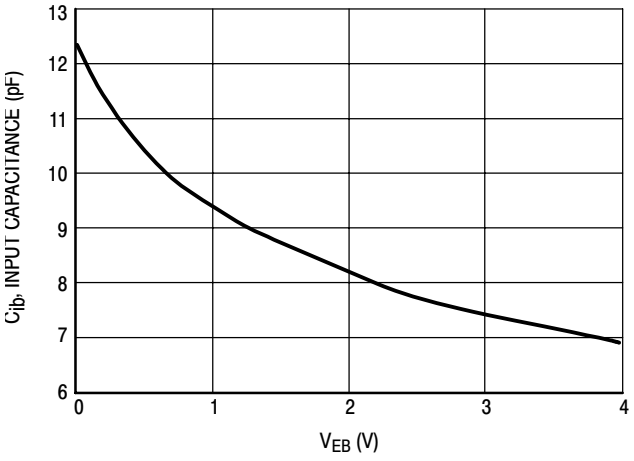


Figure 5. Capacitance

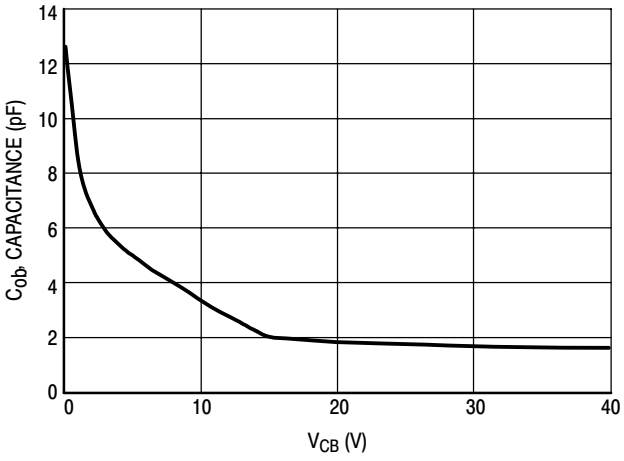


Figure 6. Capacitance

TYPICAL ELECTRICAL CHARACTERISTICS − Q2, NPN

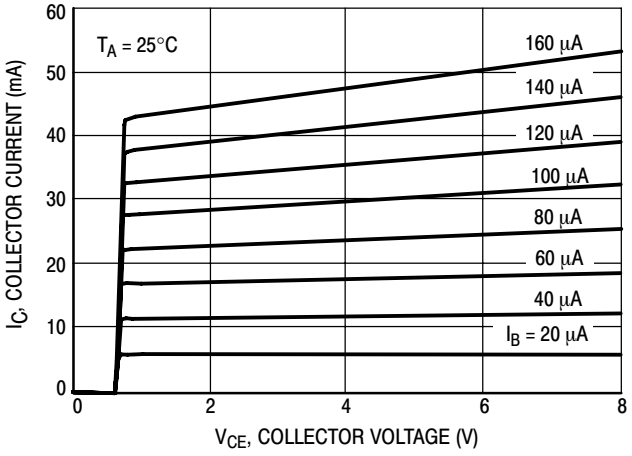


Figure 1. I_C − V_{CE}

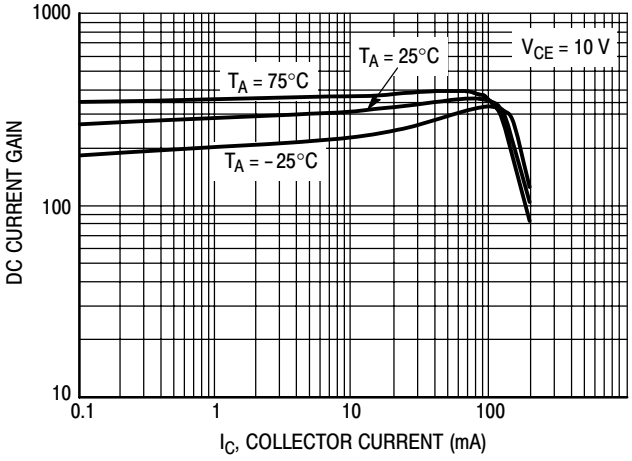


Figure 2. DC Current Gain

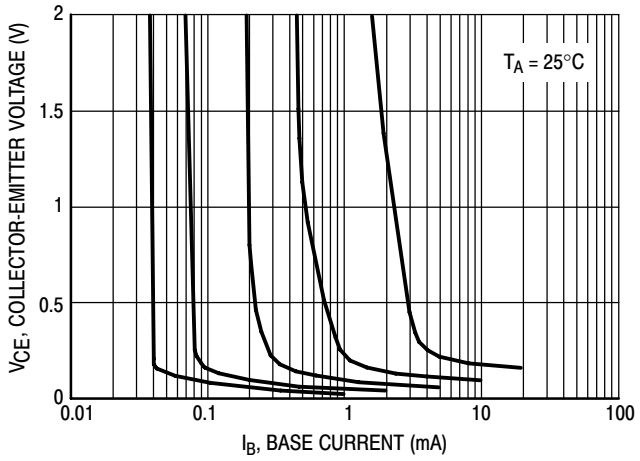


Figure 3. Collector Saturation Region

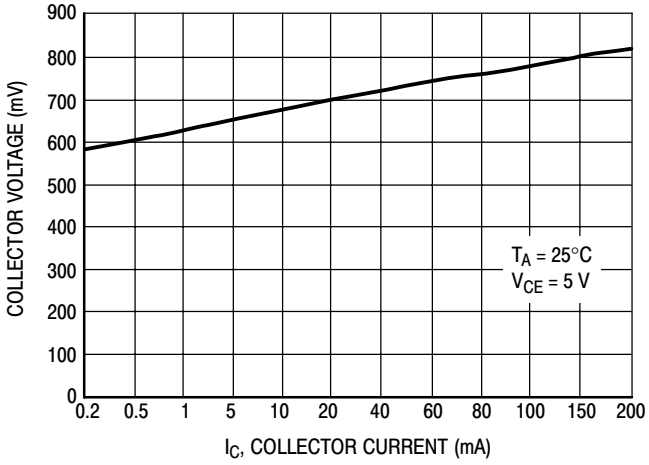


Figure 4. On Voltage

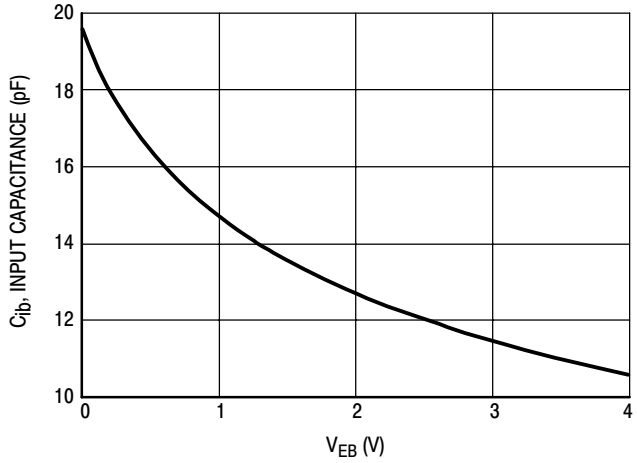


Figure 5. Capacitance

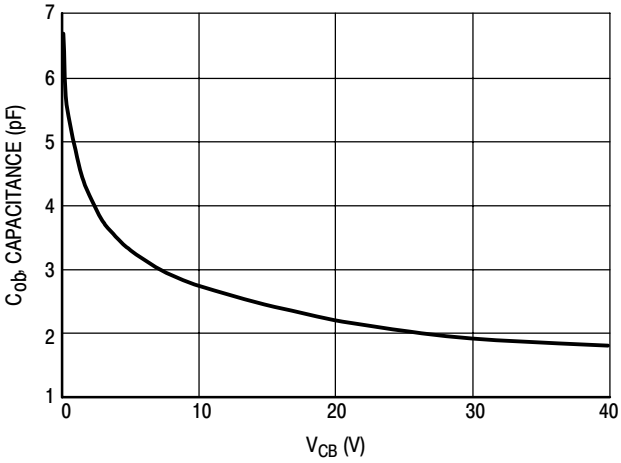
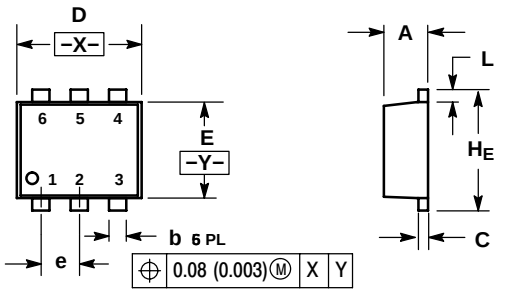


Figure 6. Capacitance

PACKAGE DIMENSIONS

SOT−563, 6 LEAD
CASE 463A−01
ISSUE F

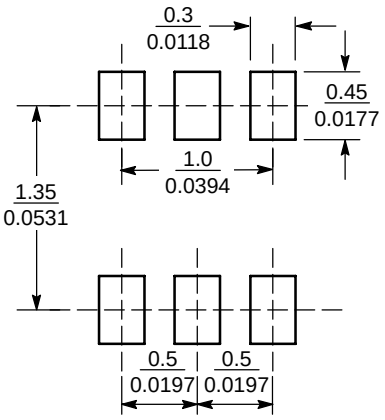


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

	MILLIMETERS			INCHES		
DIM	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*



SCALE 20:1 (mm / inches)

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.