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

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	$R_{ heta JA}$	350 (Note 1)	°C/W
Characteristic (Both Junctions Heated)	Symbol	Max	Unit
Total Device Dissipation T _A = 25°C	P _D	500 (Note 1)	mW
Derate above 25°C		4.0 (Note 1)	mW/°C
Derate above 25°C Thermal Resistance, Junction-to-Ambient	R _{θJA}	4.0 (Note 1) 250 (Note 1)	mW/°C °C/W

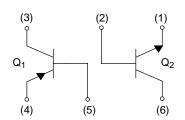
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-4 @ Minimum Pad.



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SOT-563 CASE 463A STYLE 1

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.

EMZ1DXV6T1, EMZ1DXV6T5

ELECTRICAL CHARACTERISTICS $(T_A = 25^{\circ}C)$

Characteristic	Symbol	Min	Тур	Max	Unit
Q1: PNP					
Collector–Base Breakdown Voltage ($I_C = -50 \mu Adc$, $I_E = 0$)	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 $(I_E = -50 \mu Adc, I_E = 0)$	V _{(BR)EBO}	-6.0	_	-	Vdc
Collector–Base Cutoff Current $(V_{CB} = -30 \text{ Vdc}, I_E = 0)$	I _{CBO}	-	-	-0.5	nA
Emitter–Base Cutoff Current (V _{EB} = -5.0 Vdc, I _B = 0)	I _{EBO}	-	-	-0.5	μА
Collector–Emitter Saturation Voltage (Note 2) ($I_C = -50 \text{ mAdc}, I_B = -5.0 \text{ mAdc}$)	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 $(V_{CE} = -12 \text{ Vdc}, I_C = -2.0 \text{ mAdc}, f = 30 \text{ MHz})$	f⊤	-	140	-	MHz
Output Capacitance $(V_{CB} = -12 \text{ Vdc}, I_E = 0 \text{ Adc}, f = 1 \text{ MHz})$	C _{OB}	_	3.5	-	pF
Q2: NPN		•	•		•
Collector-Base Breakdown Voltage ($I_C = 50 \mu Adc, I_E = 0$)	V _{(BR)CBO}	60	_	_	Vdc
Collector-Emitter Breakdown Voltage $(I_C = 1.0 \text{ mAdc}, I_B = 0)$	V _{(BR)CEO}	50	_	_	Vdc
Emitter-Base Breakdown Voltage ($I_E = 50 \mu Adc, I_E = 0$)	V _{(BR)EBO}	7.0	_	_	Vdc
Collector-Base Cutoff Current (V _{CB} = 60 Vdc, I _E = 0)	I _{CBO}	_	_	0.5	μΑ
Emitter-Base Cutoff Current (V _{EB} = 7.0 Vdc, I _B = 0)	I _{EBO}	-	_	0.5	μΑ
Collector-Emitter Saturation Voltage (Note 3) $(I_C = 50 \text{ mAdc}, I_B = 5.0 \text{ mAdc})$	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 ($V_{CE} = 12 \text{ Vdc}$, $I_{C} = 2.0 \text{ mAdc}$, $f = 30 \text{ MHz}$)	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 \leq 300 μ s, D.C. \leq 2%.

ORDERING INFORMATION

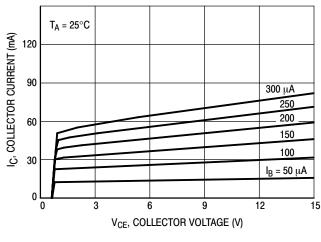
Device	Package	Shipping [†]
EMZ1DXV6T1	SOT-563*	4000 Units / Tape & Reel
EMZ1DXV6T1G	SOT-563*	4000 Units / Tape & Reel
EMZ1DXV6T5	SOT-563*	8000 Units / Tape & Reel
EMZ1DXV6T5G	SOT-563*	8000 Units / Tape & Reel

[†]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.

^{3.} Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.

EMZ1DXV6T1, EMZ1DXV6T5

TYPICAL ELECTRICAL CHARACTERISTICS - Q1, PNP



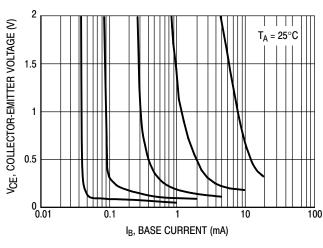
1000

T_A = 75°C

T_A = 25°C

Figure 1. I_C - V_{CE}

Figure 2. DC Current Gain



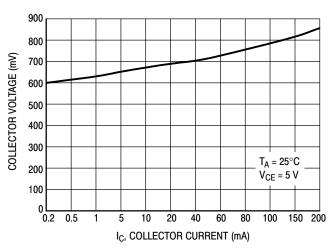
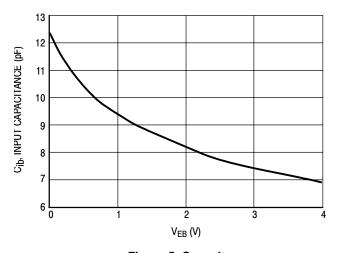


Figure 3. Collector Saturation Region

Figure 4. On Voltage



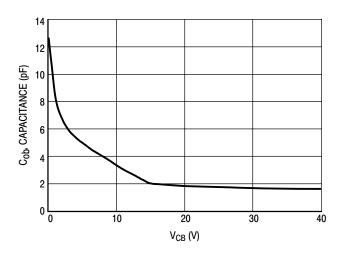
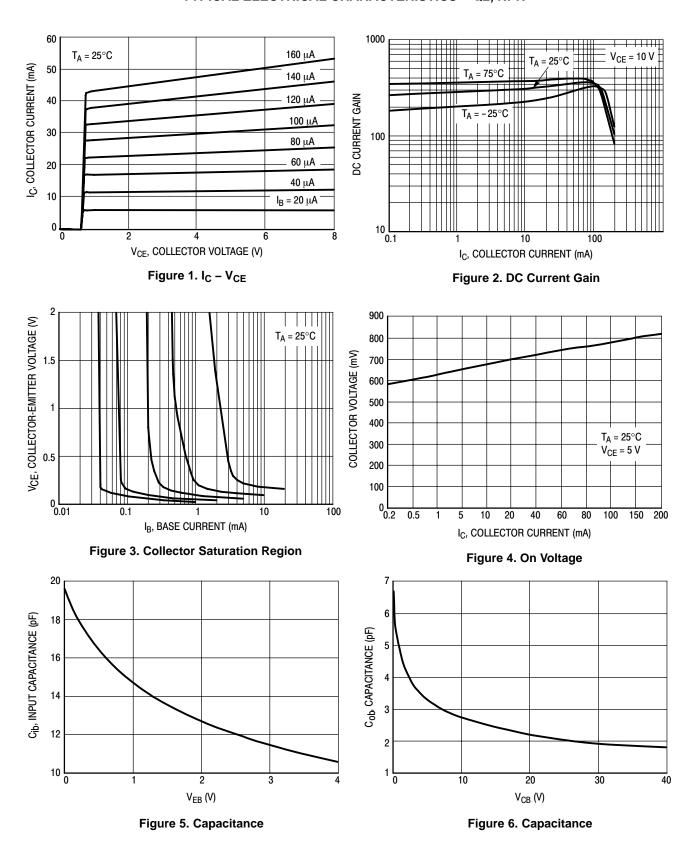


Figure 5. Capacitance

Figure 6. Capacitance

EMZ1DXV6T1, EMZ1DXV6T5

TYPICAL ELECTRICAL CHARACTERISTICS - Q2, NPN



MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS



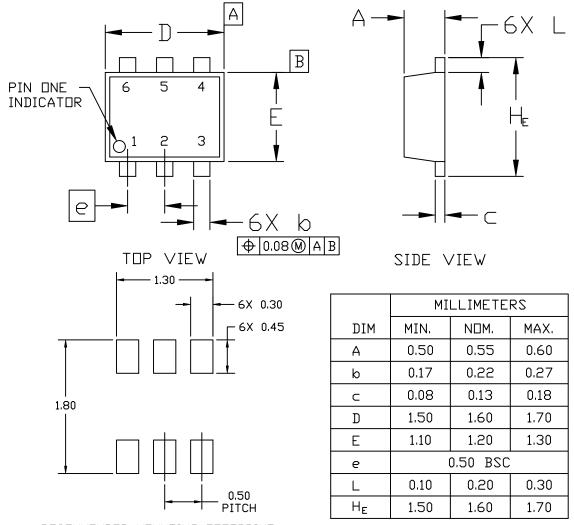


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DATE 26 JAN 2021

NOTES:

- I. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
- 2. CONTROLLING DIMENSION: MILLIMETERS
- 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.



RECOMMENDED MOUNTING FOOTPRINT*

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

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DATE 26 JAN 2021

STYLE 1: PIN 1. EMITTER 1 2. BASE 1 3. COLLECTOR 2 4. EMITTER 2 5. BASE 2 6. COLLECTOR 1	STYLE 2: PIN 1. EMITTER 1 2. EMITTER 2 3. BASE 2 4. COLLECTOR 2 5. BASE 1 6. COLLECTOR 1	STYLE 3: PIN 1. CATHODE 1 2. CATHODE 1 3. ANODE/ANODE 4. CATHODE 2 5. CATHODE 2 6. ANODE/ANODE
STYLE 4: PIN 1. COLLECTOR 2. COLLECTOR 3. BASE 4. EMITTER 5. COLLECTOR 6. COLLECTOR	STYLE 5: PIN 1. CATHODE 2. CATHODE 3. ANODE 4. ANODE 5. CATHODE 6. CATHODE	STYLE 6: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. CATHODE 6. CATHODE
STYLE 7: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. ANODE 6. CATHODE	STYLE 8: PIN 1. DRAIN 2. DRAIN 3. GATE 4. SDURCE 5. DRAIN 6. DRAIN	STYLE 9: PIN 1. SDURCE 1 2. GATE 1 3. DRAIN 2 4. SDURCE 2 5. GATE 2 6. DRAIN 1
STYLE 10: PIN 1. CATHODE 1 2. N/C 3. CATHODE 2 4. ANODE 2 5. N/C 6. ANODE 1	STYLE 11: PIN 1. EMITTER 2 2. BASE 2 3. COLLECTOR 1 4. EMITTER 1 5. BASE 1 6. COLLECTOR 2	

GENERIC MARKING DIAGRAM*



XX = Specific Device CodeM = Month Code= Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

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