

EMG2DXV5T1, EMG5DXV5T1

DEVICE MARKING AND RESISTOR VALUES

Device	Package	Marking	R1 (K)	R2 (K)
EMG2DXV5T1	SOT-553	UP	47	47
EMG5DXV5T1	SOT-553	UF	10	47

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS (Q1 & Q2)

Collector-Base Cutoff Current (V _{CB} = 50 V, I _E = 0)	I _{CBO}	–	–	100	nAdc
Collector-Emitter Cutoff Current (V _{CE} = 50 V, I _B = 0)	I _{CEO}	–	–	500	nAdc
Emitter-Base Cutoff Current (V _{EB} = 6.0 V, I _C = 0)	I _{EBO}	–	–	0.1	mAdc
		–	–	0.2	
Collector-Base Breakdown Voltage (I _C = 10 μA, I _E = 0)	V _{(BR)CBO}	50	–	–	Vdc
Collector-Emitter Breakdown Voltage (Note 3) (I _C = 2.0 mA, I _B = 0)	V _{(BR)CEO}	50	–	–	Vdc

ON CHARACTERISTICS (Q1 & Q2) (Note 3)

DC Current Gain (V _{CE} = 10 V, I _C = 5.0 mA)	EMG2DXV5T1 EMG5DXV5T1	h _{FE}	80 80	140 140	– –	
Collector-Emitter Saturation Voltage (I _C = 10 mA, I _B = 0.3 mA)		V _{CE(sat)}	–	–	0.25	Vdc
Output Voltage (on) (V _{CC} = 5.0 V, V _B = 3.5 V, R _L = 1.0 kΩ)	EMG2DXV5T1	V _{OL}	–	–	0.2	Vdc
(V _{CC} = 5.0 V, V _B = 2.5 V, R _L = 1.0 kΩ)	EMG5DXV5T1		–	–	0.2	
Output Voltage (off) (V _{CC} = 5.0 V, V _B = 0.5 V, R _L = 1.0 kΩ)		V _{OH}	4.9	–	–	Vdc
Input Resistor	EMG2DXV5T1 EMG5DXV5T1	R ₁	32.9 7.0	47 10	61.1 13	kΩ
Resistor Ratio	EMG2DXV5T1 EMG5DXV5T1	R ₁ /R ₂	0.8 0.17	1.0 0.21	1.2 0.25	

3. Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2.0%

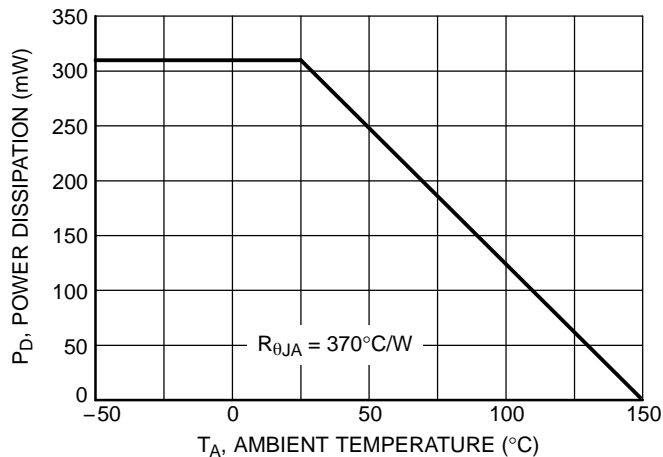


Figure 1. Derating Curve

EMG2DXV5T1, EMG5DXV5T1

TYPICAL ELECTRICAL CHARACTERISTICS — EMG2DXV5T1

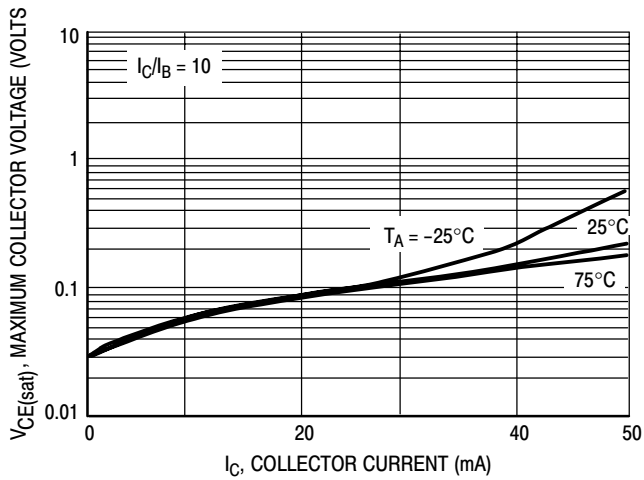


Figure 2. $V_{CE(sat)}$ versus I_C

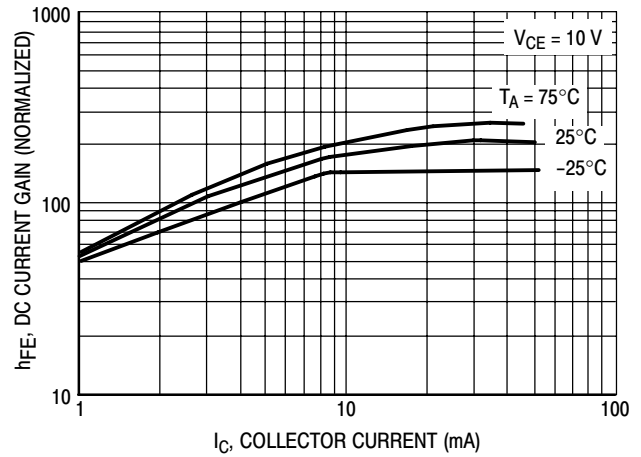


Figure 3. DC Current Gain

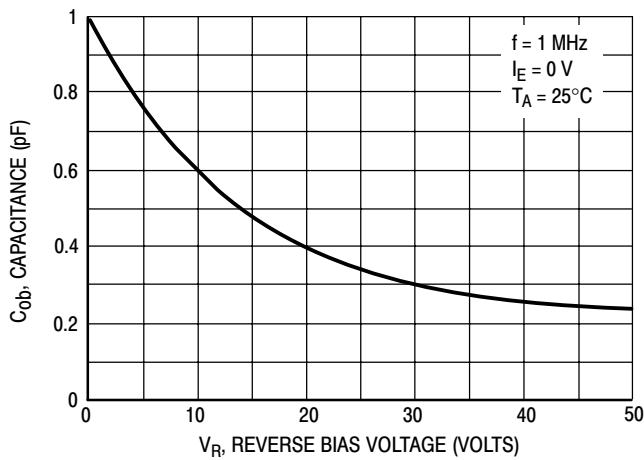


Figure 4. Output Capacitance

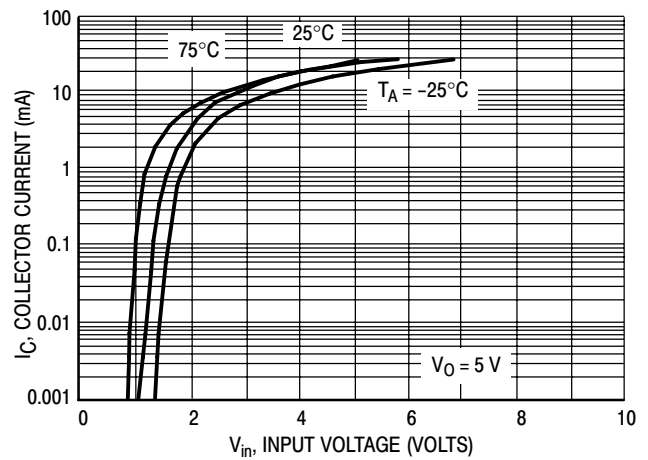


Figure 5. Output Current versus Input Voltage

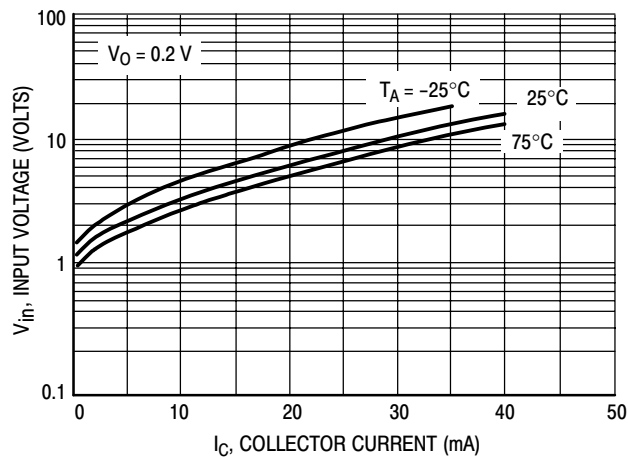


Figure 6. Input Voltage versus Output Current

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TYPICAL ELECTRICAL CHARACTERISTICS – EMG5DXV5T1

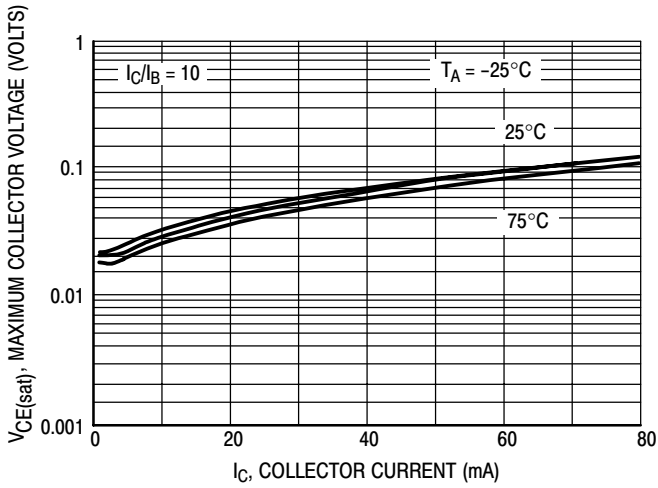


Figure 7. $V_{CE(sat)}$ versus I_C

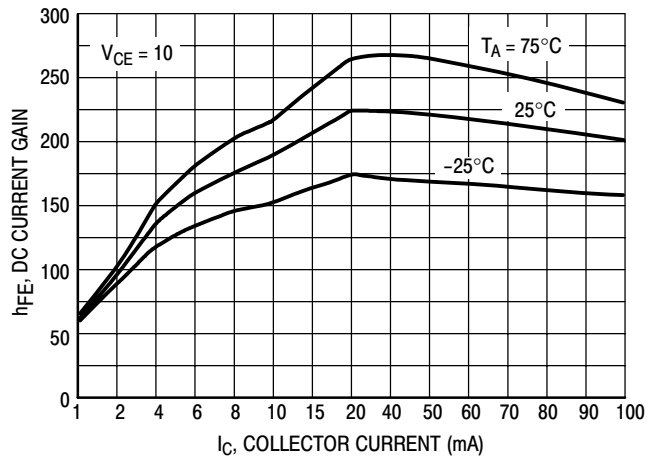


Figure 8. DC Current Gain

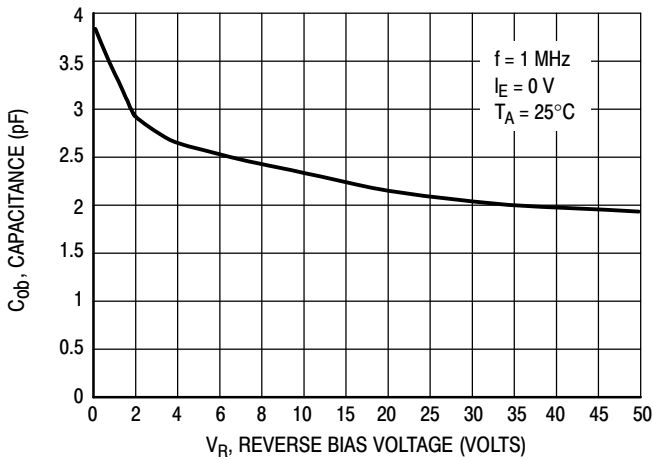


Figure 9. Output Capacitance

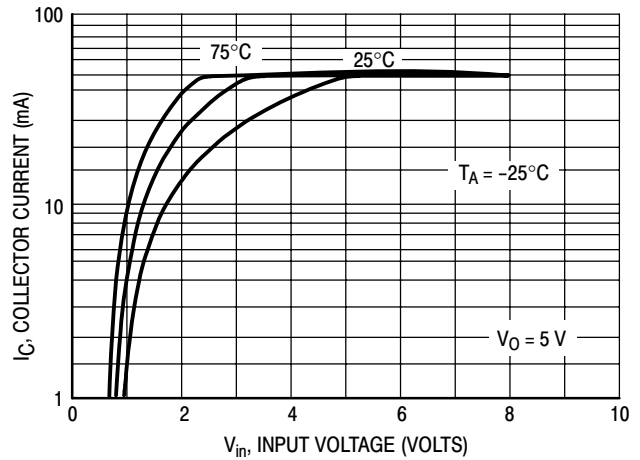


Figure 10. Output Current versus Input Voltage

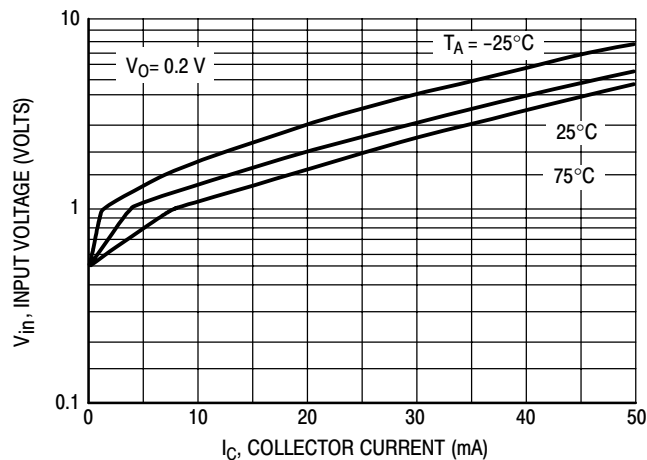


Figure 11. Input Voltage versus Output Current

EMG2DXV5T1, EMG5DXV5T1

TYPICAL APPLICATIONS FOR NPN BRTs

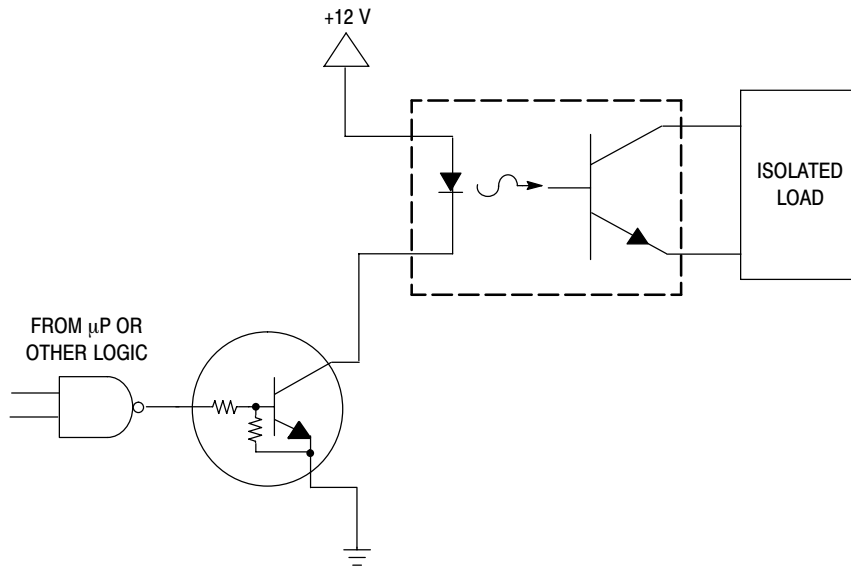


Figure 12. Level Shifter: Connects 12 or 24 Volt Circuits to Logic

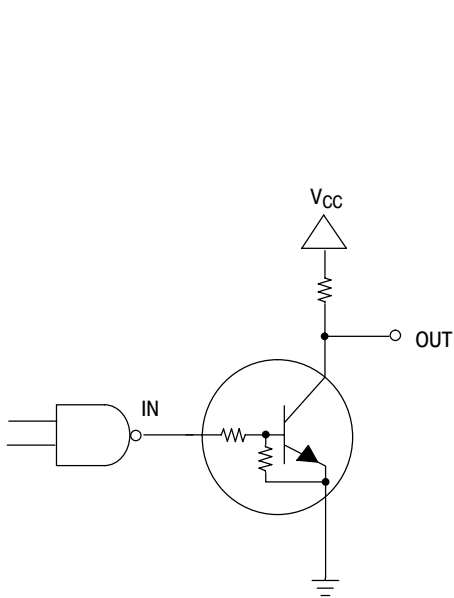


Figure 13. Open Collector Inverter: Inverts the Input Signal

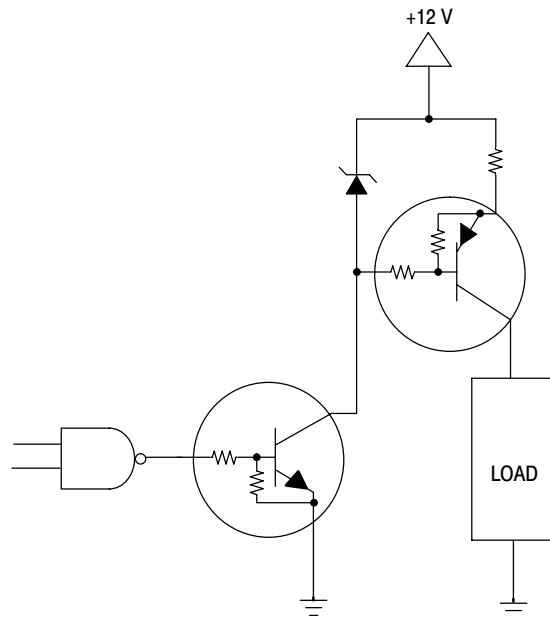


Figure 14. Inexpensive, Unregulated Current Source

EMG2DXV5T1, EMG5DXV5T1

DEVICE ORDERING INFORMATION

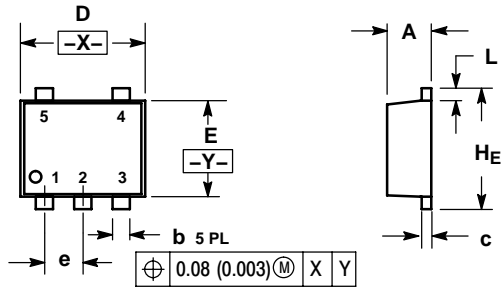
Device	Package	Shipping†
EMG2DXV5T1	SOT-553	4000 / Tape & Reel
EMG2DXV5T1G	SOT-553 (Pb-Free)	4000 / Tape & Reel
EMG2DXV5T5	SOT-553	8000 / Tape & Reel
EMG2DXV5T5G	SOT-553 (Pb-Free)	8000 / Tape & Reel
EMG5DXV5T1	SOT-553	4000 / Tape & Reel
EMG5DXV5T1G	SOT-553 (Pb-Free)	4000 / Tape & Reel
EMG5DXV5T5	SOT-553	8000 / Tape & Reel
EMG5DXV5T5G	SOT-553 (Pb-Free)	8000 / 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.

EMG2DXV5T1, EMG5DXV5T1

PACKAGE DIMENSIONS

SOT-553
XV5 SUFFIX
5-LEAD PACKAGE
CASE 463B-01
ISSUE B

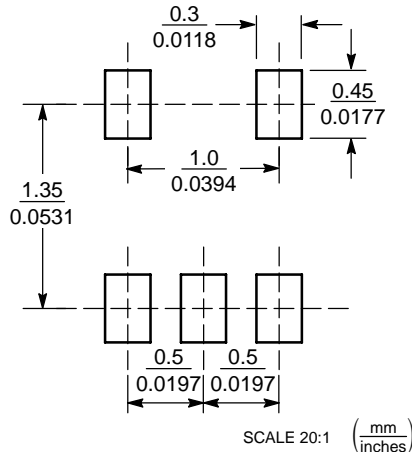


NOTES:

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	0.022	0.024
b	0.17	0.22	0.27	0.007	0.009	0.011
c	0.08	0.13	0.18	0.003	0.005	0.007
D	1.50	1.60	1.70	0.059	0.063	0.067
E	1.10	1.20	1.30	0.043	0.047	0.051
e	0.50 BSC			0.020 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	1.50	1.60	1.70	0.059	0.063	0.067

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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