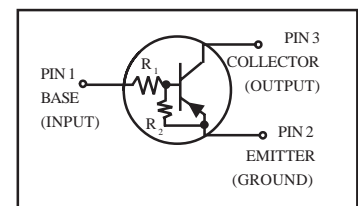


Bias Resistor Transistors

PNP Silicon Surface Mount Transistors with Monolithic Bias Resistor Network

This new series of digital transistors is designed to replace a single device and its external resistor bias network. The BRT (Bias Resistor Transistor) contains a single transistor with a monolithic bias network consisting of two resistors; a series base resistor and a base-emitter resistor. The BRT eliminates these individual components by integrating them into a single device. The use of a BRT can reduce both system cost and board space. The device is housed in the SOT-23 package which is designed for low power surface mount applications.

- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- The SOT-23 package can be soldered using wave or reflow. The modified gull-winged leads absorb thermal stress during soldering eliminating the possibility of damage to the die.
- Available in 8 mm embossed tape and reel. Use the Device Number to order the 7 inch/3000 unit reel. Replace “T1” with “T3” in the Device Number to order the 13 inch/10,000 unit reel.
- We declare that the material of product compliance with RoHS requirements.



MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	50	Vdc
Collector-Emitter Voltage	V _{CEO}	50	Vdc
Collector Current	I _C	100	mAdc

THEMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation <small>T_A = 25 °C Derate above 25 °C</small>	P _D	246 (Note 1.) 400 (Note 2.) 1.5 (Note 1.) 2.0 (Note 2.)	mW C/W
Thermal Resistance – Junction-to-Ambient	R _{θJA}	508 (Note 1.) 311 (Note 2.)	C/W
Thermal Resistance – Junction-to-Lead	R _{θJL}	174 (Note 1.) 208 (Note 2.)	C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C

1. FR-4 @ Minimum Pad
2. FR-4 @ 1.0 x 1.0 inch Pad



DTA201 ~ DTA214 / DTA217 / DTA223

ORDERING INFORMATION (DEVICE MARKING AND RESISTOR VALUES)

Device	Package	Marking	R1 (K)	R2 (K)	Shipping
DTA201T1G DTA201T3G	SOT-23	A6J	4.7	4.7	3000/Tape & Reel 10,000/Tape & Reel
DTA202T1G DTA202T3G	SOT-23	A6A	10	10	3000/Tape & Reel 10,000/Tape & Reel
DTA203T1G DTA203T3G	SOT-23	A6B	22	22	3000/Tape & Reel 10,000/Tape & Reel
DTA204T1G DTA204T3G	SOT-23	A6C	47	47	3000/Tape & Reel 10,000/Tape & Reel
DTA206T1G DTA206T3G	SOT-23	A6K	4.7	47	3000/Tape & Reel 10,000/Tape & Reel
DTA207T1G (Note 3.) DTA207T3G	SOT-23	A6D	10	47	3000/Tape & Reel 10,000/Tape & Reel
DTA208T1G (Note 3.) DTA208T3G	SOT-23	A6L	22	47	3000/Tape & Reel 10,000/Tape & Reel
DTA210T1G (Note 3.) DTA210T3G	SOT-23	A6F	4.7	∞	3000/Tape & Reel 10,000/Tape & Reel
DTA211T1G (Note 3.) DTA211T3G	SOT-23	A6E	10	∞	3000/Tape & Reel 10,000/Tape & Reel
DTA214T1G (Note 3.) DTA214T3G	SOT-23	A6O	47	∞	3000/Tape & Reel 10,000/Tape & Reel
DTA217T1G (Note 3.) DTA217T3G	SOT-23	A6H	2.2	2.2	3000/Tape & Reel 10,000/Tape & Reel
DTA223T1G (Note 3.) DTA223T3G	SOT-23	A6G	1.0	1.0	3000/Tape & Reel 10,000/Tape & Reel

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

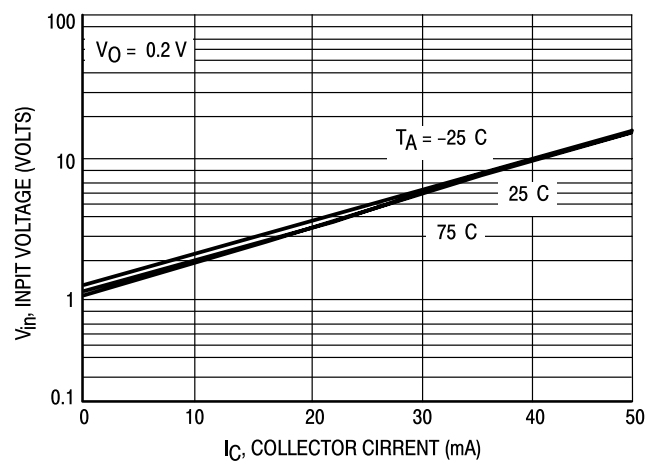
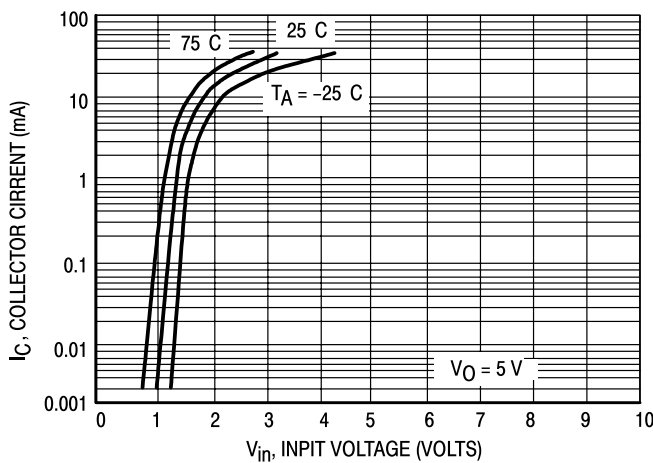
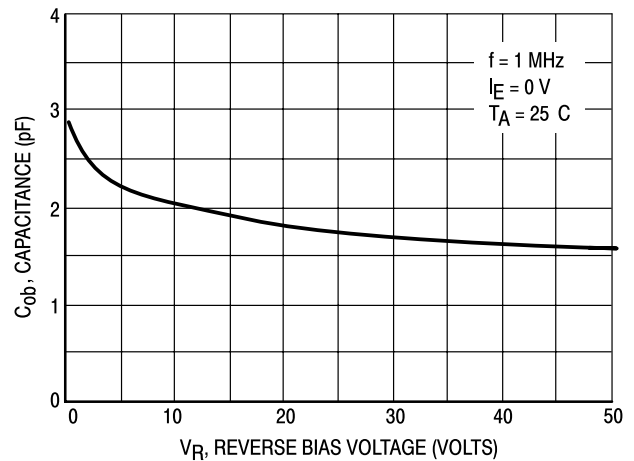
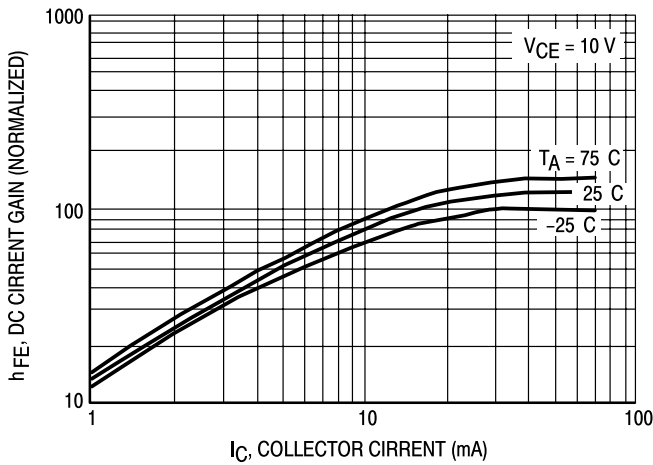
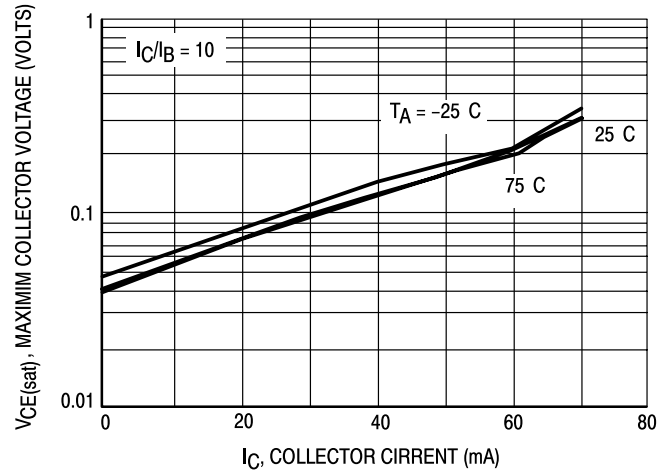
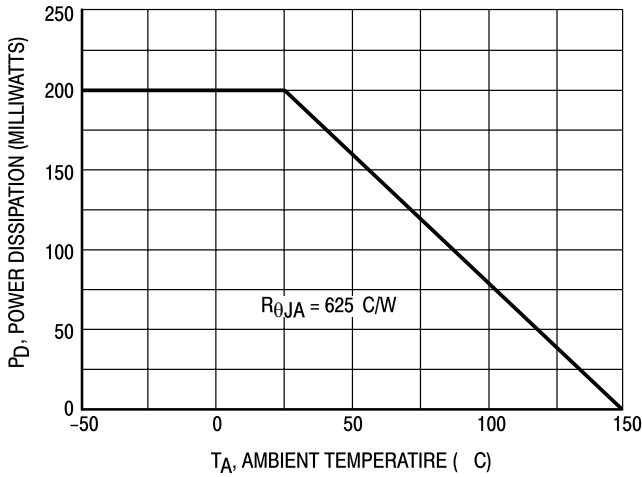
Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Base Cutoff Current (V _{CB} = 50 V, I _E = 0)	I _{CBO}	–	–	100	nAdc
Collector-Emitter Cutoff Current (V _{CE} = 50 V, I _B = 0)	I _{CEO}	–	–	500	nAdc
Emitter-Base Cutoff Current (V _{EB} = 6.0 V, I _C = 0)	I _{EBO}	–	–	1.5	mAdc
	DTA201	–	–	0.5	
	DTA202	–	–	0.2	
	DTA203	–	–	0.1	
	DTA204	–	–	0.18	
	DTA206	–	–	0.2	
	DTA207	–	–	0.13	
	DTA208	–	–	1.9	
	DTA210	–	–	0.9	
	DTA211	–	–	0.1	
	DTA214	–	–	2.3	
	DTA217	–	–	4.3	
	DTA223	–	–		
Collector-Base Breakdown Voltage (I _C = 10μA, I _E = 0)	V _{(BR)CBO}	50	–	–	Vdc
Collector-Emitter Breakdown Voltage (Note 4.) (I _C = 2.0 mA, I _E = 0)	V _{(BR)CEO}	50	–	–	Vdc

3. New devices. Updated curves to follow in subsequent data sheets.

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

TYPICAL ELECTRICAL CHARACTERISTICS

DTA202



TYPICAL ELECTRICAL CHARACTERISTICS

DTA203

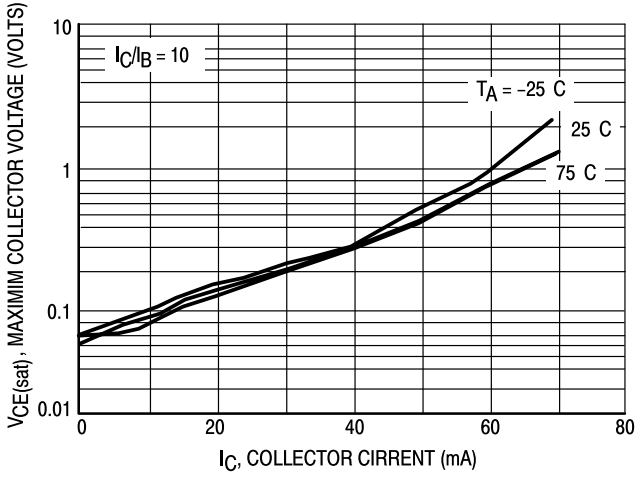


Figure 7. $V_{CE(sat)}$ versus I_C

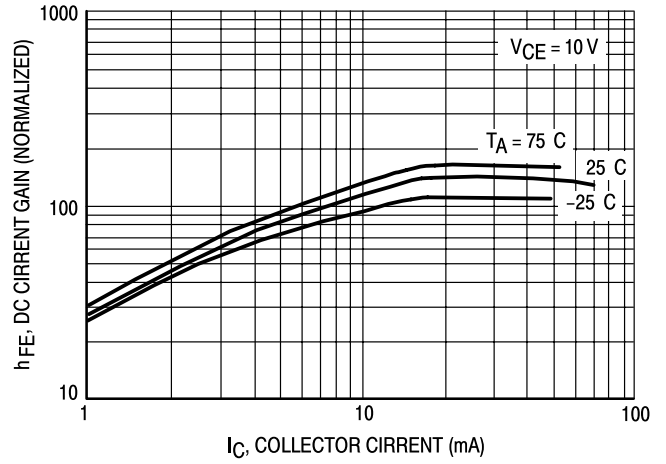


Figure 8. DC Current Gain

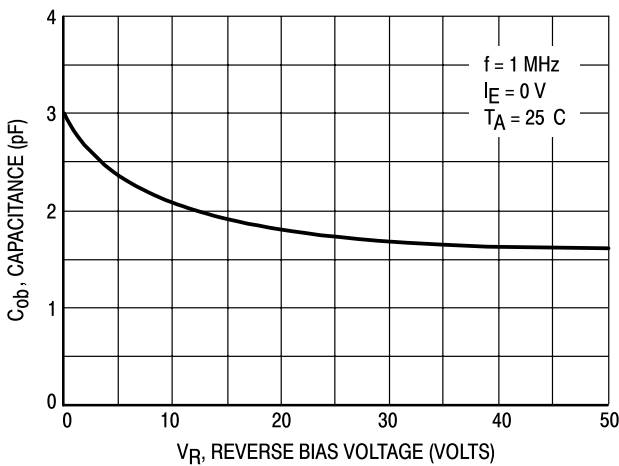


Figure 9. Output Capacitance

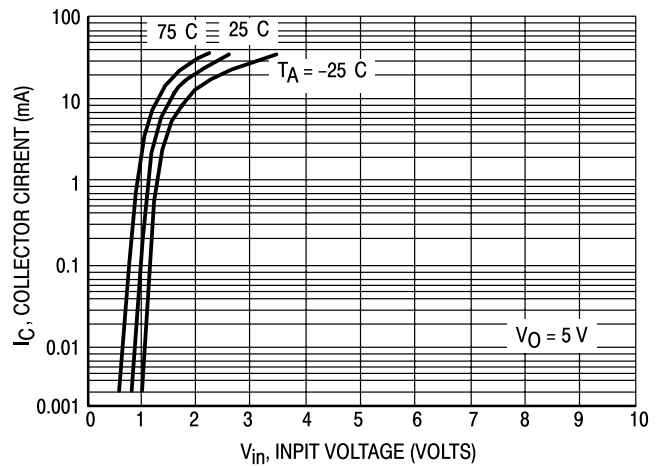


Figure 10. Output Current versus Input Voltage

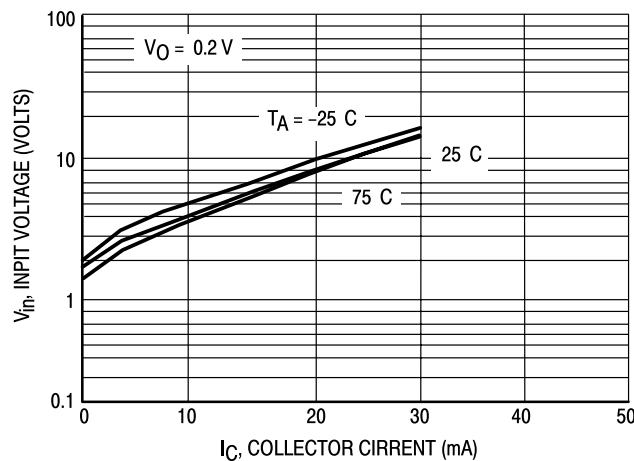


Figure 11. Input Voltage versus Output Current

TYPICAL ELECTRICAL CHARACTERISTICS DTA204

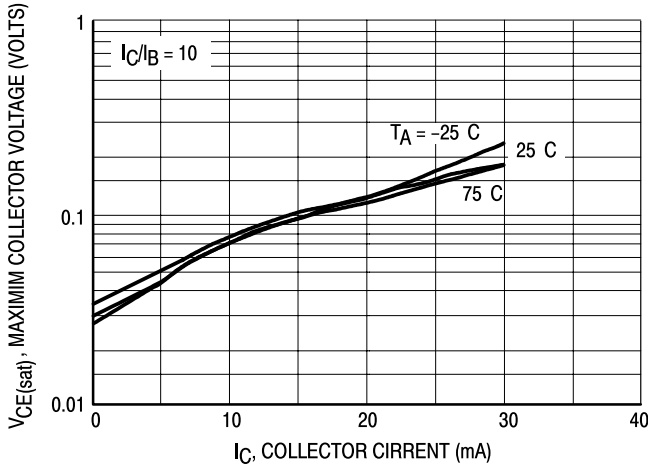


Figure 12. $V_{CE(sat)}$ versus I_C

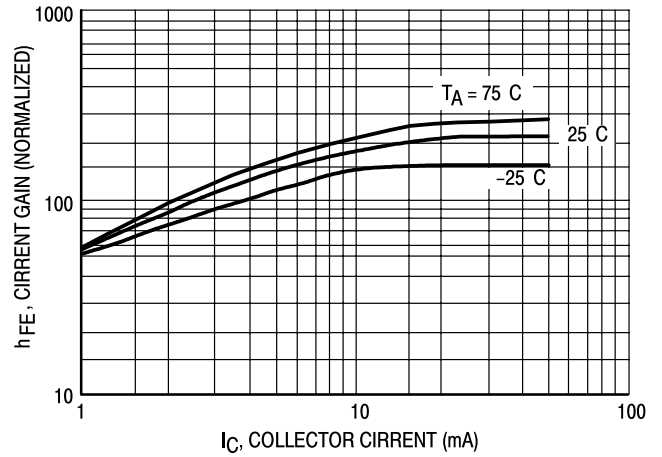


Figure 13. DC Current Gain

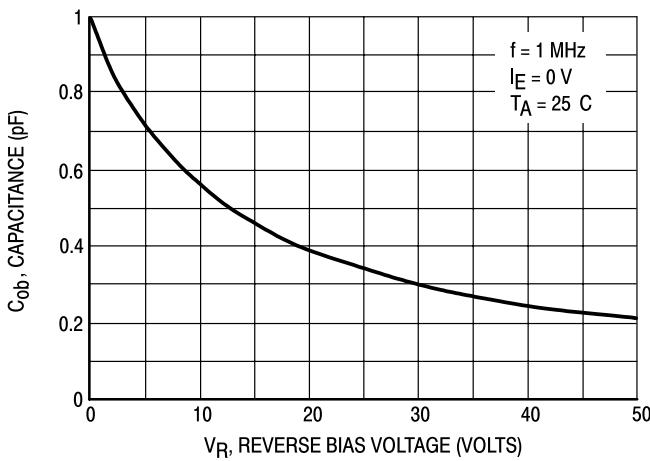


Figure 14. Output Capacitance

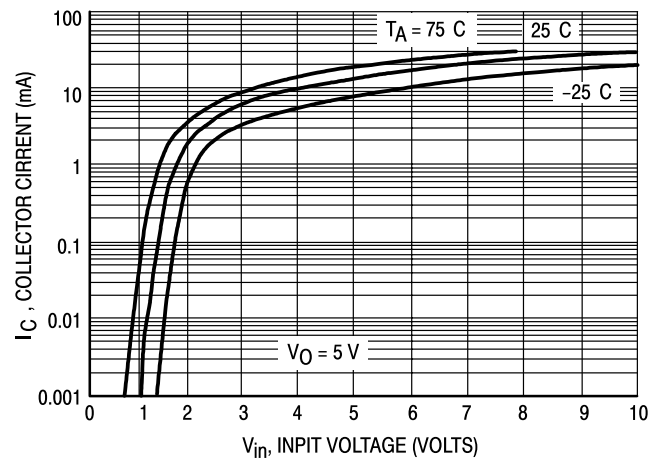


Figure 15. Output Current versus Input Voltage

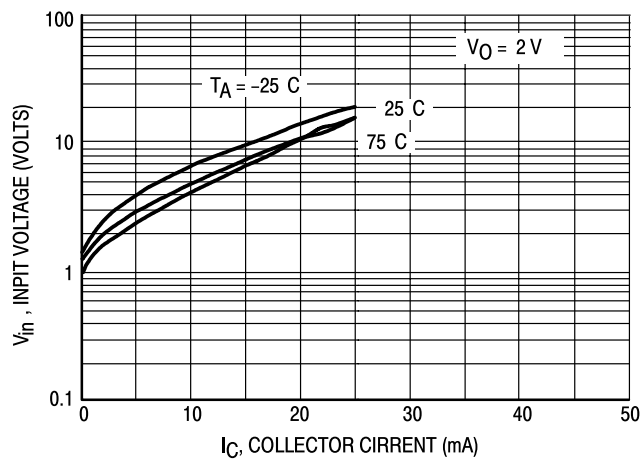
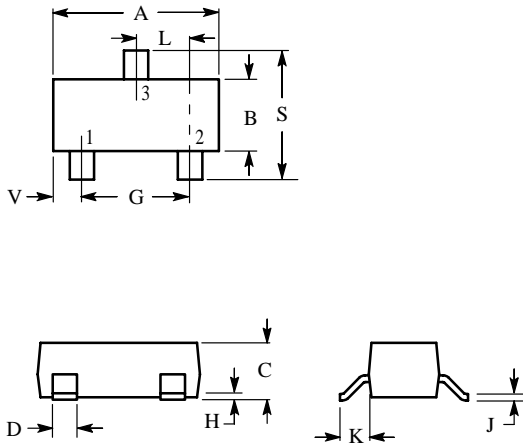


Figure 16. Input Voltage versus Output Current

SOT-23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

- PIN 1 BASE
 2 EMITTER
 3 COLLECTOR

