

ZO-28/F

BIAS DEVICE
Thermal Tracking

GENERAL DESCRIPTION

The ZO-28/F is a bias device designed to work with very high power BiPolar transistors, operating Class A and AB. It has extremely low source impedance and high current handling capability. The package may be physically mounted to the same heat sink as the RF transistor, providing very accurate thermal tracking.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 40 Watts

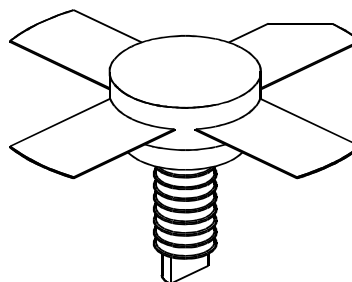
Maximum Voltage and Current

BVis	Injector to Supplier Voltage	35 Volts
Is	Supplier Current	3.5 Amps
Ic	Controller Current	0.3 Amps
Hfe	Transistor Current Gain - Min	30

Maximum Temperatures

Storage Temperature	- 65 to +150°C
Operating Junction Temperature	+200°C

CASE OUTLINE 55GU



See Case Outline for Connections

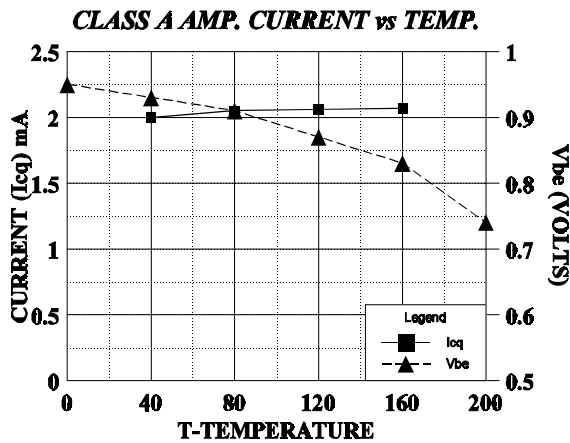
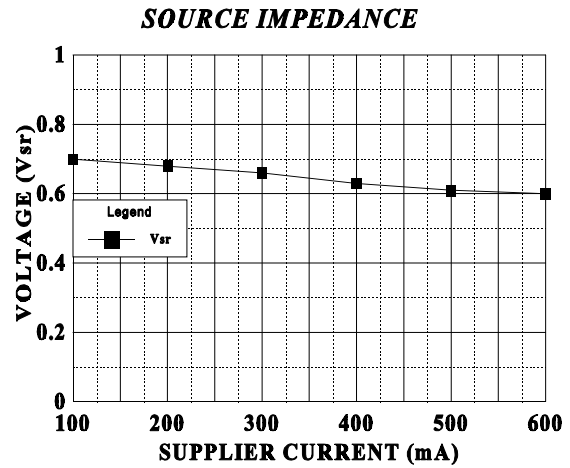
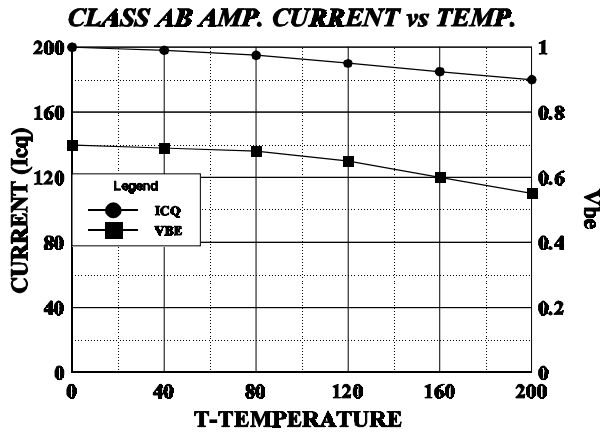
ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_{sco}	Supplier - Controller Breakdown Injector Open	$I_i = 0, I_s = 5 \text{ mA}$	4			Volts
BV_{iso}	INjector - Supplier Breakdown Controller Opne	$I_i = 10 \text{ mA}$	50			Volts
BV_{iss}	Injector - Supplier Breakdown Controller Shorted	$I_i = 50 \text{ mA}$	90			Volts
H_{fe}	DC Current Gain	$I_i = 1 \text{ A}, V_{is} = 5 \text{ Volts}$	30			
V_{cr}	Voltage Drop across Diodes	$I_i = 0\text{A}, I_c = 50 \text{ mA}$	1.34	1.4	1.48	Volts
θ_{jc}	Thermal Resistance				4.37	°C/W

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GHz Technology Inc. 3000 Oakmead Village Drive, Santa Clara, CA 95051-0808 Tel. 408 / 986-8031 Fax 408 / 986-8120



Design of the Z0-28

The Z0-28 consists of three semiconductor elements, a transistor and two diodes. The only additional component necessary is resistor Rc (see figure) and the RF filtering necessary with any bias system. The Z0-28 operates as an emitter follower, which accounts for its very low source impedance. The transistor can be operated from any voltage up to 28 Volts. The Z0-28 is capable of 40 Watts power dissipation, enough for most current and Voltage requirements. The power transistor's quiescent base Voltage is determined by the value of Rc and the supply Voltage.

The two diodes provide the thermal tracking needed for thermally stable operation. One diode compensates for the RF transistor's base-emitter junction in the Z0-28. By mounting the Z0-28 in thermal contact with the power transistor, the other diode can compensate for the power devices base-emitter junction. The diodes are fabricated with the same technology as the RF power transistor for improved thermal stability.