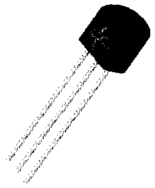
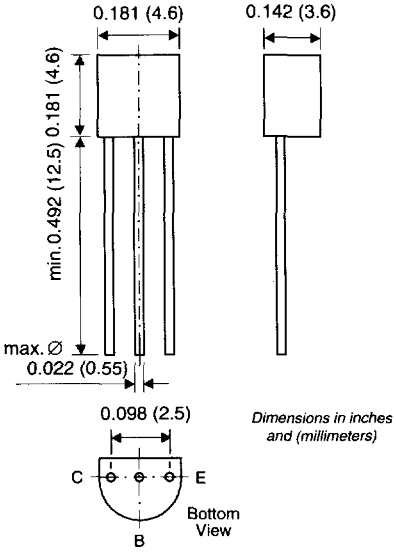
GENERAL SEMICONDUCTOR®

BC337 and BC338

Small Signal Transistors (NPN)



TO-226AA (TO-92)



Dimensions in inches and (millimeters)

Features

- NPN Silicon Epitaxial Planar Transistors for switching and amplifier applications. Especially suited for AF-driver stages and low power output stages.
- These types are also available subdivided into *three groups -16, -25, and -40, according to their* DC current gain. As complementary types, the PNP transistors BC327 and BC328 are recommended.
- On special request, this transistor is also manufactured in the pin configuration TO-18.

Mechanical Data

Case: TO-92 Plastic Package

Weight: approx. 0.18g

Packaging Codes/Options:

E6/Bulk – 5K per container, 20K/box

E7/4K per Ammo mag., 20K/box

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter		Symbol	Value	Unit
Collector-Emitter Voltage	BC337 BC338	V_{CES}	50 30	V
Collector-Emitter Voltage	BC337 BC338	V_{CEO}	45 25	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current		I_C	800	mA
Peak Collector Current		I_{CM}	1	A
Base Current		I_B	100	mA
Power Dissipation at $T_{amb} = 25°C$		P_{tot}	625(1)	mW
Thermal Resistance Junction to Ambient Air		$R_{\theta JA}$	200(1)	°C/W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_S	–65 to +150	°C

Note:
(1) Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.

3/28/00

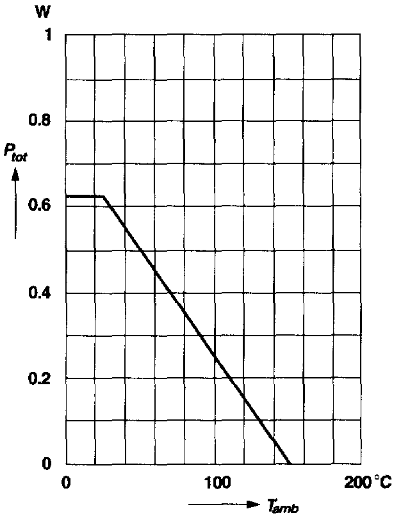
Electrical Characteristics (T$_A$ = 25°C unless otherwise noted)

Parameter		Symbol	Test Condition	Min	Typ	Max	Unit
DC Current Gain	Current gain group -16	h_{FE}	V_{CE} = 1 V, I_C = 100 mA	100	160	250	—
	-25			160	250	400	
	-40			250	400	630	
	Current gain group -16		V_{CE} = 1 V, I_C = 300 mA	60	130	—	
	-25			100	200	—	
	-40			170	320	—	
Collector-Emitter Cutoff Current	BC337	I_{CES}	V_{CE} = 45 V	—	2	100	nA
	BC338		V_{CE} = 25 V	—	2	100	nA
	BC337		V_{CE} = 45 V, T_{amb} = 125°C	—	—	10	µA
	BC338		V_{CE} = 25 V, T_{amb} = 125°C	—	—	10	µA
Collector-Emitter Breakdown Voltage	BC337	$V_{(BR)CEO}$	I_C = 10 mA	20	—	—	V
	BC338			45	—	—	
Collector-Emitter Breakdown Voltage	BC337	$V_{(BR)CES}$	I_C = 0.1 mA	30	—	—	V
	BC338			50	—	—	
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	I_E = 0.1 mA	5	—	—	V
Collector Saturation Voltage		V_{CEsat}	I_C = 500 mA, I_B = 50 mA	—	—	0.7	V
Base-Emitter Voltage		V_{BE}	V_{CE} = 1 V, I_C = 300 mA	—	—	1.2	V
Gain-Bandwidth Product		f_T	V_{CE} = 5 V, I_C = 10 mA f = 50 MHz	—	100	—	MHz
Collector-Base Capacitance		C_{CBO}	V_{CB} = 10 V, f = 1 MHz	—	12	—	pF

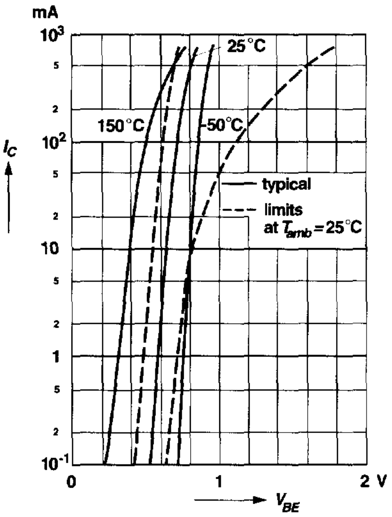
Ratings and Characteristic Curves (T$_A$ = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



Collector current versus base-emitter voltage



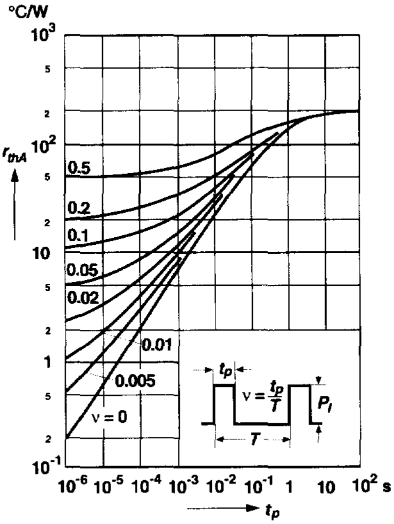
BC337 and BC338

Small Signal Transistors (NPN)

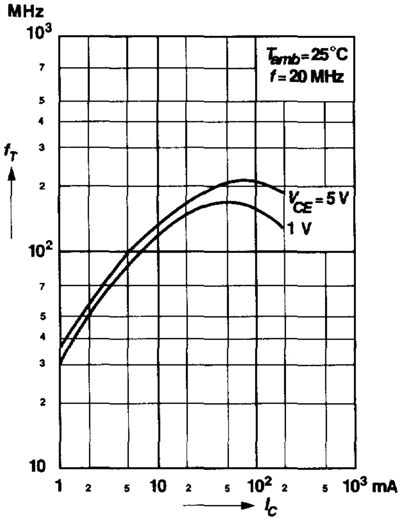
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Pulse thermal resistance versus pulse duration

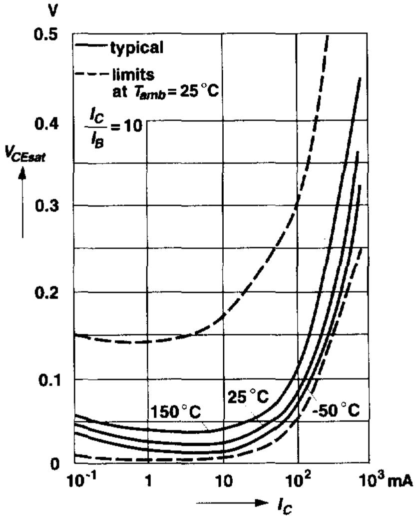
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



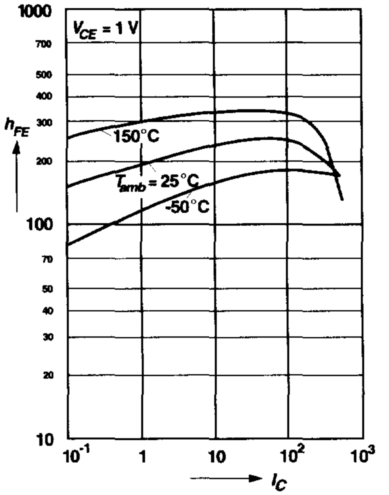
Gain-bandwidth product versus collector current



Collector saturation voltage versus collector current



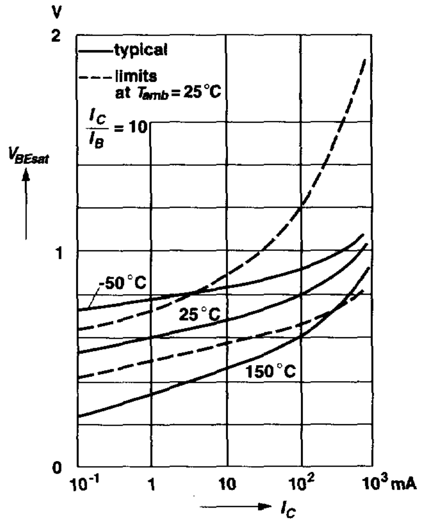
DC current gain versus collector current



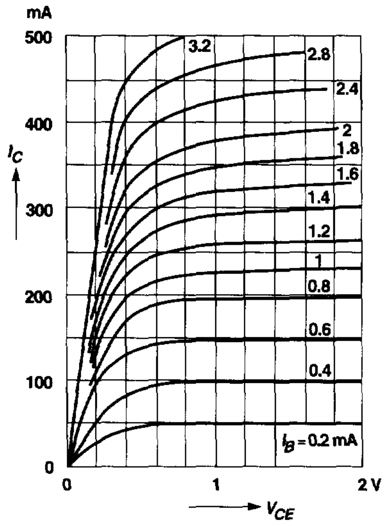
Small Signal Transistors (NPN)

Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

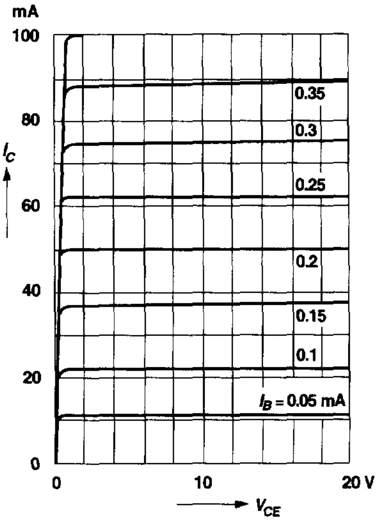
Base saturation voltage versus collector current



Common emitter collector characteristics



Common emitter collector characteristics



Common emitter collector characteristics