

BD 605**BD 607****BD 609**

PLASTIC HIGH POWER SILICON NPN TRANSISTOR

... designed for use in high power audio amplifiers utilizing complementary or quasi complementary circuits.

- DC Current— $h_{FE} = 30$ (Min) @ $I_C = 2.0$ Adc
- BD 605, 607, 609 are complementary with BD 606, 608, 610

MAXIMUM RATINGS

Rating	Symbol	Type	Value	Unit
Collector-Emitter Voltage	V_{CEO}	BD 605 BD 607 BD 609	45 60 80	Vdc
Collector-Base Voltage	V_{CBO}	BD 605 BD 607 BD 609	55 70 80	Vdc
Emitter-Base Voltage	V_{EBO}		5	Vdc
Collector Current	I_C		10.0	Adc
Base Current	I_B		6.0	Adc
Total Device Dissipation $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D		90 720	Watts mW/W°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}		-55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol		Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}		1.39	° C/W

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

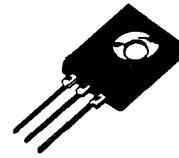
Characteristic	Symbol	Type	Min	Max	Unit
Collector-Emitter Sustaining Voltage* ($I_C = 0.2$ Adc, $I_B = 0$)	BV_{CEO}	BD 605 BD 607 BD 609	45 60 80	—	Vdc
Collector Cutoff Current ($V_{CB} = 55$ Vdc, $I_E = 0$) ($V_{CB} = 70$ Vdc, $I_E = 0$) ($V_{CB} = 80$ Vdc, $I_E = 0$)	I_{CBO}	BD 605 BD 607 BD 609	— — —	1.0 1.0 1.0	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0$ Vdc, $I_C = 0$)	I_{EBO}		—	2.0	mAdc
DC current Gain ($I_C = 2A$, $V_{CE} = 2$ V) ($I_C = 4A$, $V_{CE} = 2$ V)	h_{FE}		30 15	—	
Collector-Emitter Saturation Voltage* ($I_C = 4$ Adc, $I_B = 0.4$ Adc)	$V_{CE(sat)}$		—	1.1	Vdc
Base-Emitter On Voltage* ($I_C = 4$ Adc, $V_{CE} = 2.0$ Vdc)	$V_{BE(on)}$		—	1.6	Vdc
Current-Gain-Bandwidth Product ($I_C = 1.0$ Adc, $V_{CE} = 10$ Vdc, $f = 1.0$ MHz)	f_T		1.5	—	MHz

* Pulse Test: Pulse Width ≤ 300 μs. Duty Cycle $\leq 2.0\%$.

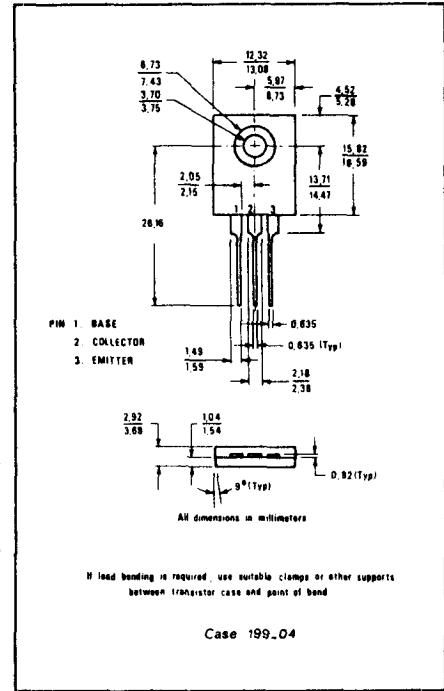
10 AMPERE POWER TRANSISTOR

NPN SILICON

45, 60, 80 VOLTS
90 WATTS



HARDWARE AVAILABLE:
1. MICA WASHER - 14B 52600 FO13
2. NYLON SHOULDER BUSHING
- SB 51547 FO10



If lead bonding is required, use suitable clamps or other supports between transistor case and point of bond.

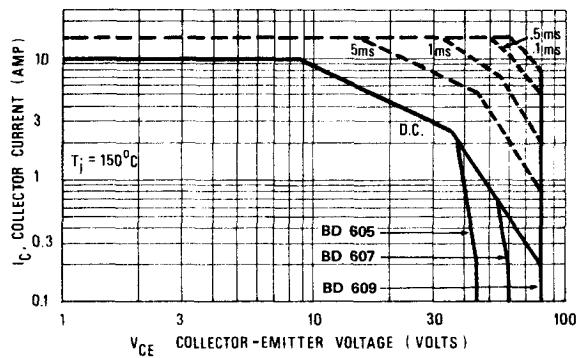
Case 199-04

BD 605

BD 607

BD 609

**FIGURE 1 — ACTIVE REGION DC
SAFE OPERATING AREA**



**FIGURE 2 — POWER-TEMPERATURE
DERATING CURVE**

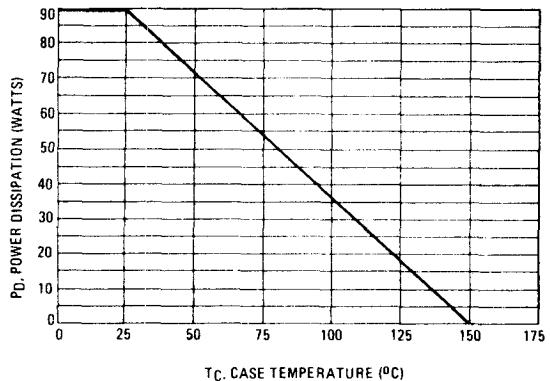


FIGURE 3 — "ON" VOLTAGES

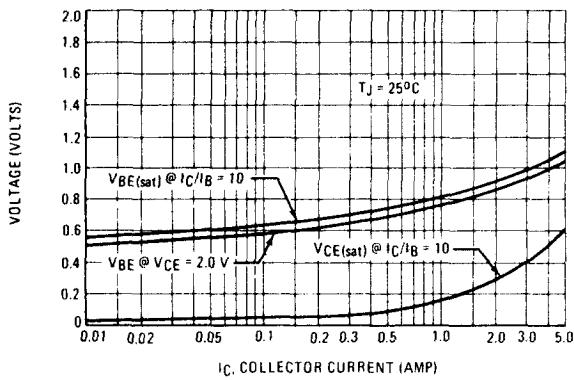


FIGURE 4 — CURRENT GAIN

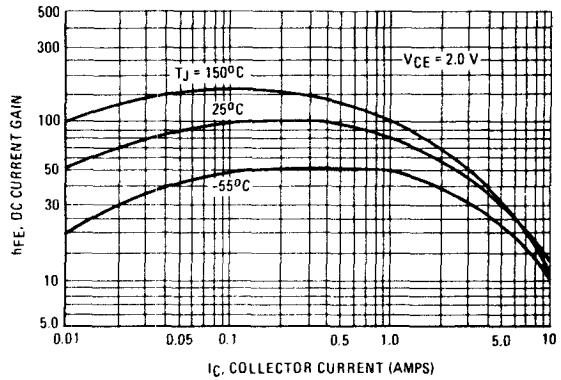
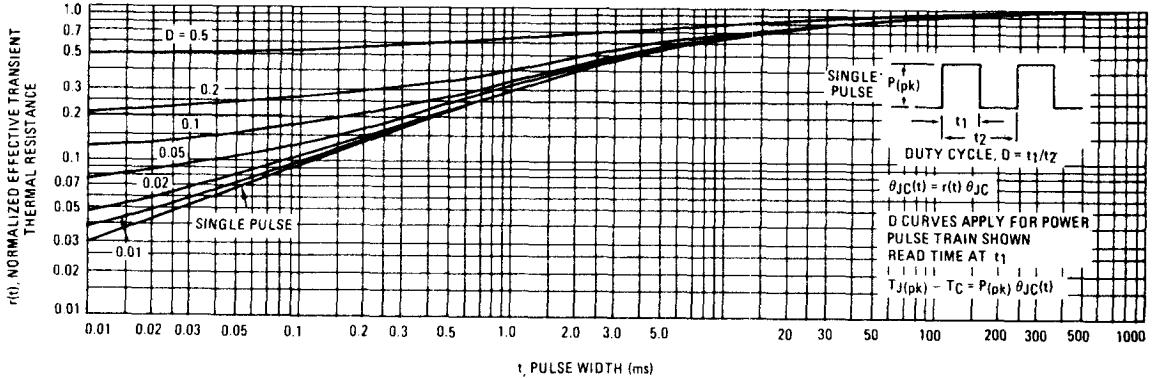


FIGURE 5 — THERMAL RESPONSE



Note 1:

There are two limitations on the power handling ability of a transistor; average junction temperature and second breakdown. Safe operating area curves indicate I_C - V_{CE} limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 1 is based on $T_J(\text{pk}) = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_J(\text{pk}) \leq 150^\circ\text{C}$. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown. (See AN-415)