

2N307 (GERMANIUM)

2N307 A

For Specifications, See 2N242 Data Sheet

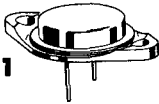
2N350A (GERMANIUM)

2N351A

2N376A

V_{CB} = 50 V
I_C = 3-5 A
P_D = 90 W

CASE 11
(TO-3)

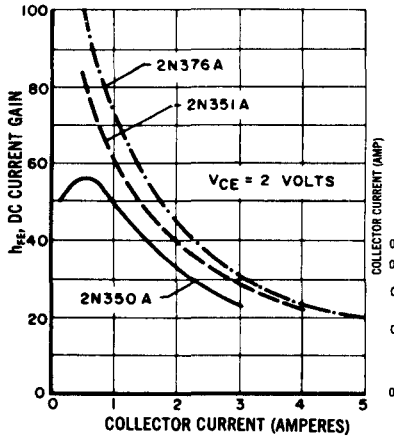


PNP germanium power transistors for economical power switching applications and for power amplifiers requiring up to 4 watts of output power at relatively low distortion.

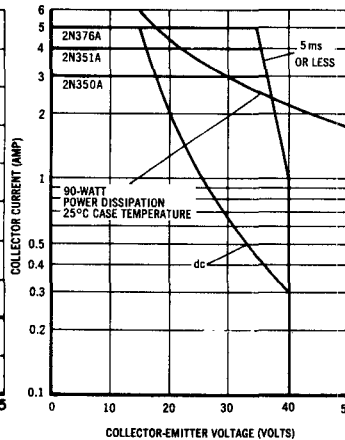
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Base Voltage	V _{CB}	50	Vdc
Collector-Emitter Voltage	V _{CES}	40	Vdc
Collector Dissipation at 25°C mounting base temperature	P _D	90	Watts
Collector Junction Temperature	T _J	-65 to +100	°C
Thermal Resistance (Junction to Case)	θ _{JC}	0.8	°C/W

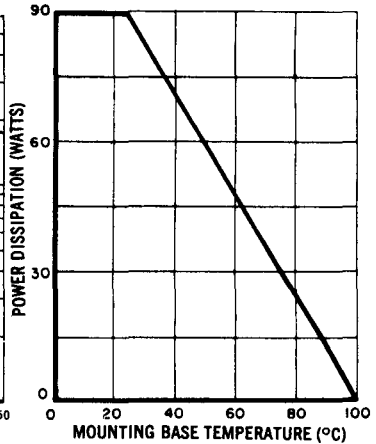
**CURRENT GAIN versus
COLLECTOR CURRENT (COMMON EMITTER)**



SAFE OPERATING AREAS



**POWER TEMPERATURE
DERATING CURVE**



The Safe Operating Area Curves indicate I_C — V_{CE} limits below which the device will not go into secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a collector-emitter short.

(Duty cycle of the excursions make no significant change in these safe areas.) To insure operation below the maximum T_J, the power-temperature derating curve must be observed for both steady state and pulse power conditions.

— Power Transistors —

2N350A, 2N351A, 2N376A (continued)

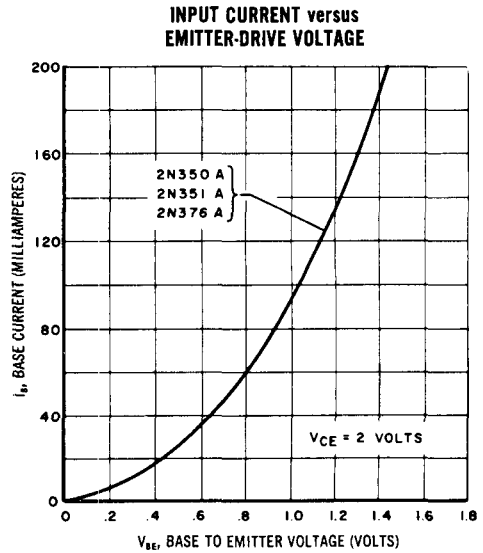
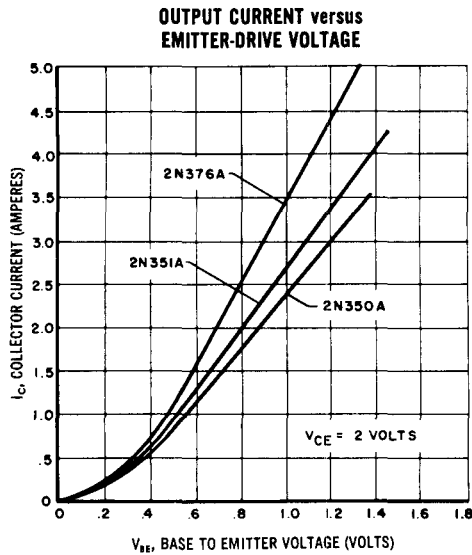
ELECTRICAL CHARACTERISTICS (at mounting base temperature $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$.)

GENERAL	Symbol	Minimum	Typical	Maximum	Unit
Collector Cutoff Current $V_{CB} = 30\text{ V}$ $V_{CB} = 2\text{ V}$ $V_{CB} = 30\text{ V}, T = 100^{\circ}\text{C}$	I_{CBO}	—	—	3.0	mA
		—	50	—	μA
		—	—	30	mA
Emitter Cutoff Current $V_{EB} = 10\text{ V}$	I_{EBO}	—	—	2.0	mA
Collector Breakdown Voltage $I_C = 1\text{ A}$ ($R_{BE} = 10\ \Omega$) $I_C = 330\text{ mA}, R_{BE} = 0$ (This test should be made under dynamic conditions only)	BV_{CES}	40	—	—	Vdc

ELECTRICAL CHARACTERISTICS (at mounting base temperature $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$.)

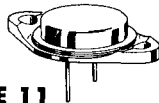
COMMON EMITTER	Sym	2N350A			2N351A			2N376A			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Power Gain ($\pm 0.5\text{ db}$) $P_{out} = 4\text{ Watts}, V_{CE} = 12\text{ V},$ $I_C = 0.7\text{ A}, f = 1\text{ kHz}$	G_{PE}	30	—	33	32	—	35	34	—	37	dB
Total Harmonic Distortion under same conditions as power gain		—	—	7%	—	—	7%	—	—	7%	
DC Forward Current Gain $V_{CE} = 2\text{ V}, I_C = 0.7\text{ A}$	h_{FE}	20	—	60	25	—	90	35	—	120	
Current Gain Frequency Cutoff $V_{CE} = 12\text{ V}, I_C = 0.7\text{ A},$ $f = 1\text{ kHz ref}$	$f_{\alpha e}$	5	—	—	5	—	—	5	—	—	kHz
Small-Signal Forward Current Gain $f = 1\text{ kHz}, V_{CE} = 2\text{ V}, I_C = 0.7\text{ A}$	h_{fe}	—	30	—	—	45	—	—	60	—	
Small-Signal Input Impedance $f = 1\text{ kHz}, V_{CE} = 2\text{ V}, I_C = 0.7\text{ A}$	h_{ie}	5	—	17	6	—	20	7	—	25	Ohms
Collector Saturation Voltage $I_C = 3\text{ A}, I_B = 300\text{ mA}$	$V_{CE(SAT)}$	—	0.8	1.75	—	—	—	—	—	—	Vdc
Base-Emitter Voltage $I_C = 3\text{ A}, I_B = 300\text{ mA}$	V_{BE}	—	1.0	2.00	—	—	—	—	—	—	Vdc
Collector Saturation Voltage $I_C = 4\text{ A}, I_B = 400\text{ mA}$	$V_{CE(SAT)}$	—	—	—	—	0.8	1.75	—	—	—	Vdc
Base-Emitter Voltage $I_C = 4\text{ A}, I_B = 400\text{ mA}$	V_{BE}	—	—	—	—	1.0	2.00	—	—	—	Vdc
Collector Saturation Voltage $I_C = 5\text{ A}, I_B = 500\text{ mA}$	$V_{CE(SAT)}$	—	—	—	—	—	—	—	0.8	1.75	Vdc
Base-Emitter Voltage $I_C = 5\text{ A}, I_B = 500\text{ mA}$	V_{BE}	—	—	—	—	—	—	—	1.0	2.00	Vdc

2N350A, 2N351A, 2N376A (continued)



2N375 (GERMANIUM)
2N618
2N1359
2N1360
2N1362 thru 2N1365

$V_{CB} = 50-120\text{ V}$
 $I_C = 3\text{ A}$
 $P_D = 106\text{ W}$



CASE 11
(TO-3)

PNP germanium power transistors for general purpose switching and amplifier applications.

MAXIMUM RATINGS

Rating	Symbol	2N1359 2N1360	2N375 2N618	2N1362 2N1363	2N1364 2N1365	Unit
Collector-Emmitter Voltage	V_{CES}	40	60	75	100	Vdc
Collector-Base Voltage	V_{CB}	50	80	100	120	Vdc
Emmitter-Base Voltage	V_{EB}	25	40	50	60	Vdc
Collector Current-Continuous Peak	I_C	3 10				Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	106 1.25				Watts $\text{W}/^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +110				$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	0.8	$^\circ\text{C}/\text{W}$