2N398, 2N398A (GERMANIUM)

CASE 31(1)
(TO-5)

All leads isolated

PNP germanium transistor for high-voltage, audio-frequency applications.

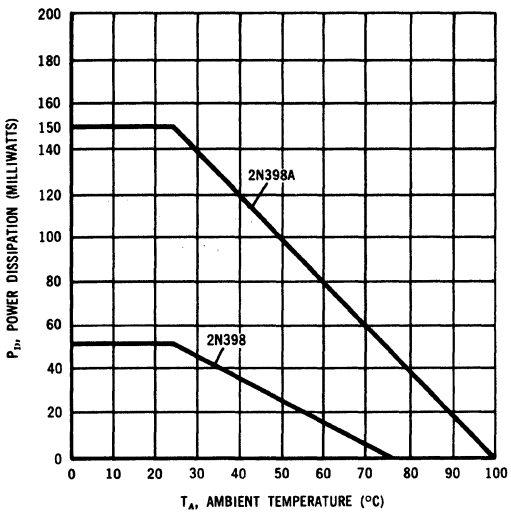
MAXIMUM RATINGS

Rating	Symbol	2N398A	2N398	Unit
Collector-Base Voltage	V_{CB}	105	105	Vdc
Collector-Emitter Voltage	V_{CEO}	105	105	Vdc
Emitter-Base Voltage	V_{EB}	50	50	Vdc
DC Collector Current	I_C	200	100	mA
Emitter Current	I_E	200	100	mA
Junction Temperature	T_J	-65 to +100	-65 to +85	°C
Storage Temperature	T_{stg}	-65 to +100	-65 to +85	°C
Collector Dissipation @ 25°C	P_D	150	50	mW
Thermal Resistance, Junction to Ambient	$\theta_{JA\ max}$	0.5	1.2	°C/mW

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

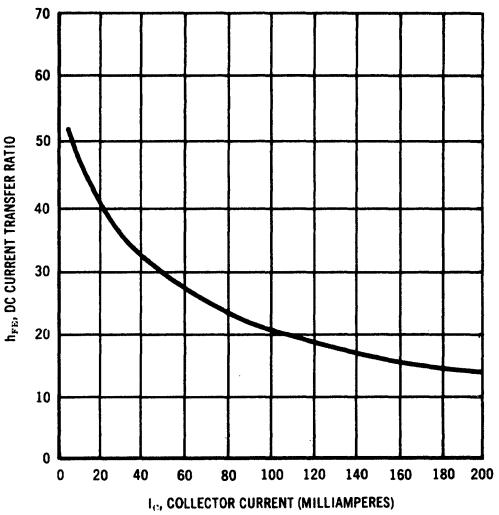
Characteristics	Symbol	Min	Typical	Max	Unit
Collector-Base Cutoff Current (V_{CB} = 105 V, I_B = 0)	I_{CBO}	-	12.0	50	μA
Collector-Base Cutoff Current (V_{CB} = 2.5 V, I_B = 0)	I_{CBO}	-	5.0	14	μA
Emitter-Base Cutoff Current (V_{EB} = 50 V, I_C = 0)	I_{EBO}	-	3.0	50	μA
Collector-Emitter Saturation Voltage (I_C = 5 mAdc; I_B = 0.25 mAdc)	$V_{CE\ (SAT)}$	-	0.11	0.35	Vdc
Base-Emitter Saturation Voltage (I_C = 5 mAdc; I_B = 0.25 mAdc)	$V_{BE\ (SAT)}$	-	0.22	0.40	Vdc
DC Current Transfor Ratio (I_C = 5 mAdc; V_{CE} = 0.35 Vdc)	h_{FE}	20	65	-	-
DC Collector-Emitter Punch-Through Voltage (V_{CB} necessary to obtain V_{EB} of -1 V max, using instrument with Z_{in} > 11 megohm to measure V_{BE})	V_{PT}	105	160	-	Vdc
Small-Signal Short-Circuit, Forward Current Transfer Ratio Cutoff Frequency (V_{CB} = 6 Vdc; I_E = 1 mAdc)	$f_{\alpha b}$	-	1.0	-	MHz

POWER – TEMPERATURE DERATING CURVE



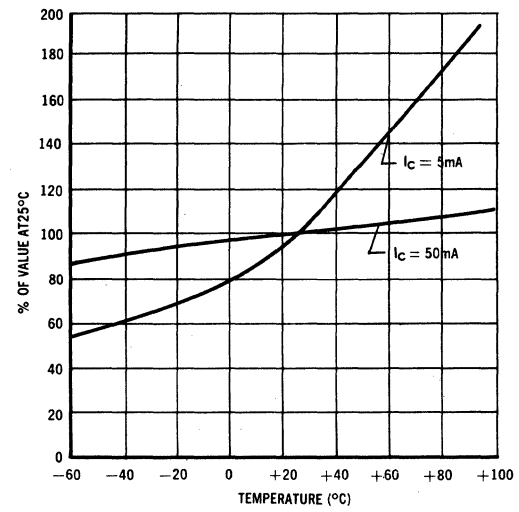
DC CURRENT TRANSFER RATIO versus COLLECTOR CURRENT

($V_{CE} = 0.35V$)



LARGE SIGNAL CURRENT GAIN (H_{FE}) versus TEMPERATURE

(Normalized to 25°C Value; $V_{CE} = 0.35V$)



OUTPUT CURRENT versus BASE-DRIVE VOLTAGE

($V_{CE} = -1$ V)