

2N2042, 2N2043 (GERMANIUM)

CASE 31(1)
(TO-5)

All leads

isolated from case



PNP germanium transistors suitable for high-voltage audio switching and amplifier applications. Suitable for high-reliability projects.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB}	105	Vdc
Collector-Emitter Voltage	V_{CES}	105	Vdc
Emitter-Base Voltage	V_{EB}	75	Vdc
Collector Current (Continuous)	I_C	200	mAdc
Operating Junction Temperature Range	T_J	-65 to +100	°C
Storage Temperature Range	T_{stg}	-65 to +100	°C
Collector Dissipation, Ambient Derate above 25°C	P_D	200 2.67	mW mW/°C
Thermal Resistance (Junction to Ambient)	θ_{JA}	0.375	°C/mW
Thermal Resistance (Junction to Case)	θ_{JC}	0.250	°C/mW

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

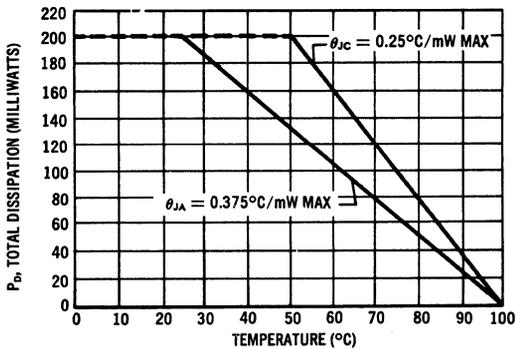
Characteristic	Symbol	Min	Max	Unit
Collector-Base Cutoff Current ($V_{CB} = 105\text{ V}$, $I_E = 0$) ($V_{CB} = 2.5\text{ V}$, $I_E = 0$) ($V_{CB} = 105\text{ V}$, $I_E = 0$, $T_A = +71^\circ\text{C}$)	I_{CBO}	-	25 10 500	μAdc
Emitter-Base Cutoff Current ($V_{EB} = 75\text{ V}$, $I_C = 0$) ($V_{EB} = 2.5\text{ V}$, $I_C = 0$)	I_{EBO}	-	50 10	μAdc
Collector-Emitter Cutoff Current ($V_{CE} = 55\text{ V}$, $R_{BE} = 10\text{ K}$)	I_{CER}	-	600	μAdc
Collector-Emitter Cutoff Current ($V_{CE} = 105\text{ V}$, $V_{BE} = 0$)	I_{CES}	-	1.0	mAdc
DC Collector-Emitter Punch-Through Voltage ($V_{fl} = 1.0\text{ V}$, VTVM R_{in} 10-12 megohm)	V_{pt}	105	-	Vdc
DC Current Gain ($I_C = 5\text{ mA}$, $V_{CE} = 0.35\text{ V}$)	h_{FE}		20 50 40 100	-
Common Base, Small-Signal Input Impedance ($V_{CB} = 6\text{ V}$, $I_E = 1\text{ mA}$, $f = 1\text{ kHz}$)	h_{ib}	30	50	Ohms

2N2042 , 2N2043 (continued)

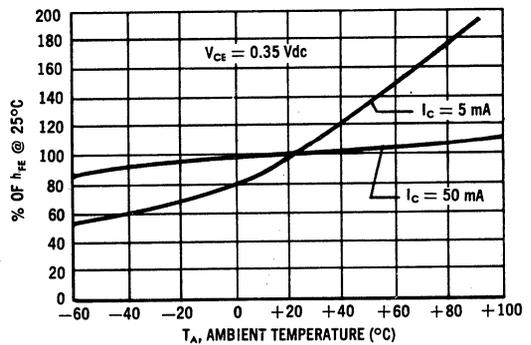
ELECTRICAL CHARACTERISTICS (continued)

Characteristic	Symbol	Min	Max	Unit
Common Base, Small-Signal Output Admittance ($V_{CB} = 6\text{ V}$, $I_E = 1\text{ mA}$, $f = 1\text{ kHz}$)	h_{ob}	0.1	1.0	μmho
Common Emitter, Small-Signal Current Transfer Ratio ($V_{CE} = 6\text{ V}$, $I_C = 1\text{ mA}$, $f = 1\text{ kHz}$)	h_{fe}	20 45	80 180	—
Base-Emitter Saturation Voltage ($I_C = 5\text{ mA}$, $I_B = 0.25\text{ mA}$)	$V_{BE(sat)}$	—	0.30	Vdc
Collector-Emitter Saturation Voltage ($I_C = 5\text{ mA}$, $I_B = 0.25\text{ mA}$) ($I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$)	$V_{CE(sat)}$	— —	0.25 0.75	Vdc
Collector Output Capacitance ($V_{CB} = 6\text{ V}$, $I_E = 0$)	C_{ob}	—	25	pF
Common-Base, Small-Signal Forward Current Transfer Ratio Cutoff Frequency ($V_{CB} = 6\text{ V}$, $I_E = 1\text{ mA}$)	$f_{\alpha b}$	0.50 0.75	— —	MHz

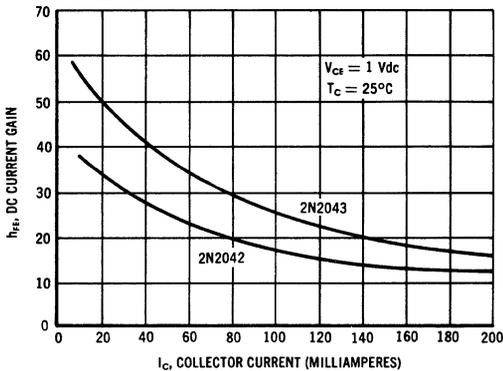
POWER-TEMPERATURE DERATING CURVE



LARGE SIGNAL CURRENT GAIN versus TEMPERATURE



DC CURRENT GAIN versus COLLECTOR CURRENT



COLLECTOR CURRENT versus BASE-DRIVE VOLTAGE

