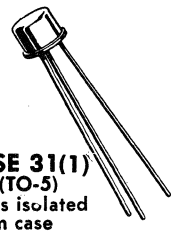
2N3427, 2N3428 (GERMANIUM)



CASE 31(1)
(TO-5)
All leads isolated from case

PNP germanium transistors for audio amplifier and medium-speed switching applications.

MAXIMUM RATINGS

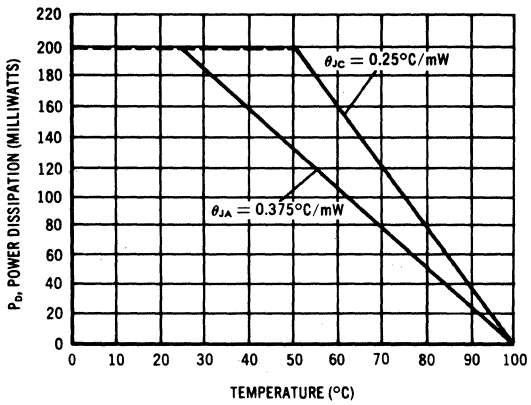
Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB}	45	Vdc
Collector-Emitter Voltage	V_{CER}	30	Vdc
Emitter-Base Voltage	V_{EB}	30	Vdc
Collector Current (Continuous)	I_C	500*	mAdc
Base Current (Continuous)	I_B	50*	mAdc
Storage and Operating Temperature Range	T_{stg}, T_J	-65 to +100	°C
Collector Dissipation, Ambient Derate Above 25°C	P_D	200 2.67	mW mW/°C

*Limited by power dissipation

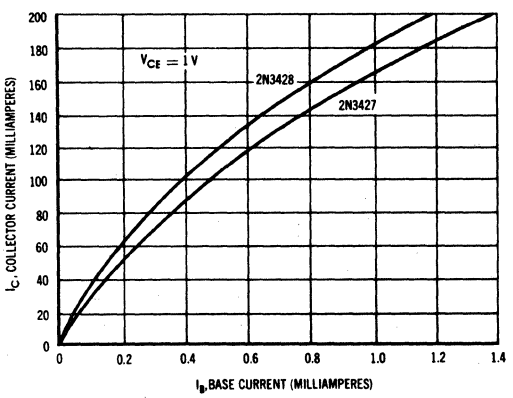
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Collector-Base Cutoff Current		I_{CBO}				μAdc
(V_{CB} = 1.5 Vdc, I_E = 0)			–	3.0	5.0	
(V_{CB} = 10 Vdc, I_E = 0, T_A = +71°C)			–	–	100	
(V_{CB} = 30 Vdc, I_E = 0)			–	–	10	
(V_{CB} = 45 Vdc, I_E = 0)			–	–	50	
Emitter-Base Cutoff Current		I_{EBO}				μAdc
(V_{EB} = 30 Vdc, I_C = 0)			–	3.0	10	
Collector-Emitter Leakage Current		I_{CER}				μAdc
(V_{CE} = 30 Vdc, R_{BE} = 10K ohms)			–	–	600	
Collector-Emitter Punch-Thru Voltage		V_{pt}				Vdc
(V_{fl} = 1.0 Vdc, VTVM impedance ≥ 1 megohm)			30	–	–	
Output Capacitance		C_{ob}				pF
(V_{CB} = 6 Vdc, I_E = 0, f = 1 MHz)			–	10	20	
Noise Figure		NF				dB
(V_{CE} = 4.5 Vdc, I_E = 0.5 mAdc, R_s = 1 K ohms, f = 1 kHz, Δf = 1 Hz)			–	5.0	10	
Small-Signal Current-Gain Cutoff Frequency		$f_{\alpha b}$				MHz
(V_{CB} = 6 Vdc, I_E = 1 mAdc)	2N3427		4.0	6.0	–	
	2N3428		5.0	8.0	–	
Input Impedance		h_{ib}				Ohms
(V_{CB} = 6 Vdc, I_E = 1 mAdc, f = 1 kHz)			25	–	35	
Output Admittance		h_{ob}				μmho
(V_{CB} = 6 Vdc, I_E = 1 mAdc, f = 1 kHz)			0.05	–	0.50	
Small-Signal Current Gain		h_{fe}				–
(V_{CE} = 6 Vdc, I_E = 1 mAdc, f = 1 kHz)	2N3427		200	325	500	
	2N3428		350	475	800	
Small-Signal Current Gain		$\lvert h_{fe} \rvert$				–
(V_{CE} = 6 Vdc, I_E = 1 mAdc, f = 2 MHz)	2N3427		2.0	–	7.0	
	2N3428		2.5	–	8.0	
DC Current Gain		h_{FE}				–
(I_C = 20 mAdc, V_{CE} = 1 Vdc)	2N3427		150	275	–	
	2N3428		250	375	–	
(I_C = 100 mAdc, V_{CE} = 1 Vdc)	2N3427		100	210	350	
	2N3428		150	260	400	
(I_C = 200 mAdc, V_{CE} = 1 Vdc)	2N3427		75	–	–	
	2N3428		125	–	–	
Base-Emitter Input Voltage		V_{BE}				Vdc
(V_{CE} = 1 Vdc, I_C = 100 mAdc)			–	–	0.5	
Collector-Emitter Saturation Voltage		V_{CE} (sat)				Vdc
(I_C = 100 mAdc, I_B = 2 mAdc)	2N3427		–	0.155	0.200	
	2N3428		–	0.150	0.190	
(I_C = 200 mAdc, I_B = 4 mAdc)	2N3427		–	0.220	0.300	
	2N3428		–	0.200	0.280	

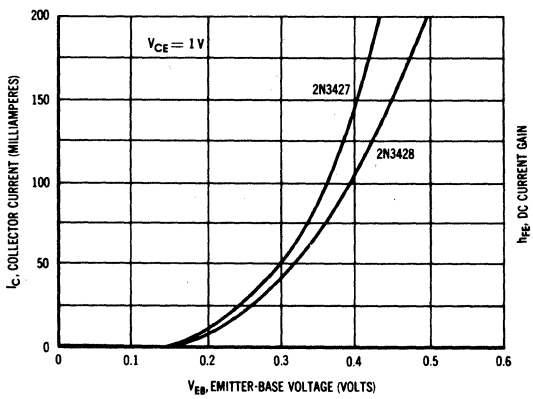
POWER-TEMPERATURE DERATING CURVE



COLLECTOR CURRENT versus BASE CURRENT



OUTPUT CURRENT versus BASE DRIVE VOLTAGE



DC CURRENT GAIN versus COLLECTOR CURRENT