2N653 thru 2N655 (GERMANIUM)

CASE 31(1)
(TO-5)

All leads isolated

PNP germanium transistor, for high-gain amplifier and switching service in the audio frequency range.

MAXIMUM RATINGS

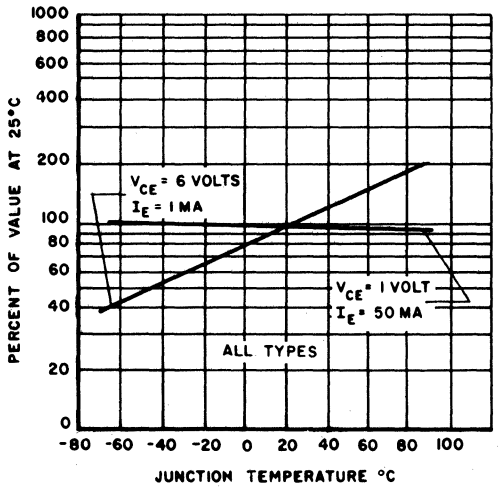
Rating	Symbol	Value	Unit
Collector to Base Voltage	V_{CB}	30	Volts
Collector to Emitter Voltage	V_{CER}	25	Volts
Emitter to Base Voltage	V_{EB}	25	Volts
Collector D. C. Current *	I_C	250*	mA
Junction Temperature Limits	T_J	-65 to +100	°C
Storage Temperature Limits	T_{stg}	-65 to +100	°C
Collector Dissipation in, Ambient Derate 2.67 mW/° C above 25° C	P_D	200	mW
Thermal Resistance, Junction to Ambient	θ_{JA}	0.375	°C/mW

*Limited by power dissipation.

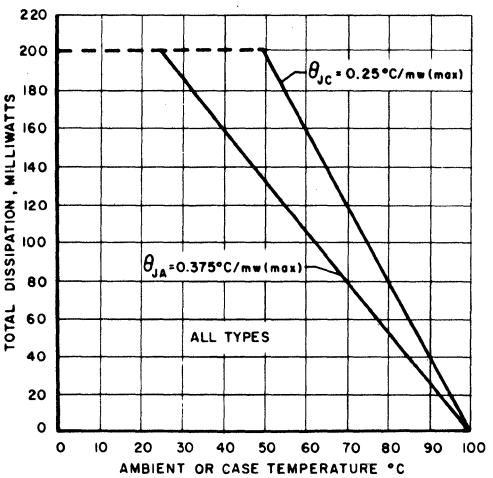
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristics	Symbol	2N653			2N654			2N655			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Small Signal Current Gain V_{CE} = 6 V, I_E = 1.0 mA, f = 1 kHz	h_{fe}	30	49	70	50	80	125	100	130	250	-
Small Signal Input Impedance V_{CE} = 6 V, I_E = 1.0 mA, f = 1 kHz	h_{ie}	750	-	2900	1500	-	4700	3000	-	8500	ohms
Small Signal Current Gain Cutoff Frequency V_{CB} = 6 V, I_E = 1.0 mA	$f_{\alpha b}$		1.5			2.0			2.5		MHz
Output Capacity V_{CB} = 6 V, I_E = 0 mA, f = 1 MHz	C_{ob}		10			10			10		pF
Noise Figure V_{CE} = 4.5 V, I_E = 0.5 mA, R_s = 1, f = kHz Δf = 1 Hz	NF		10			10			10		dB
Collector Reverse Current V_{CB} = 25 V, I_E = 0	I_{CBO}		5.0	15		5.0	15		5.0	15	μA
Emitter Reverse Current V_{EB} = 25 V, I_C = 0	I_{EBO}		5.0	15		5.0	15		5.0	15	μA
Collector-Emitter Reverse Current V_{CE} = 25 V, R_{BE} = 10 k	I_{CER}			600			600			600	μA
Base-Emitter Input Voltage V_{CE} = 6 V, I_C = 1.0 mA	V_{BE}			0.3			0.3			0.3	Vdc

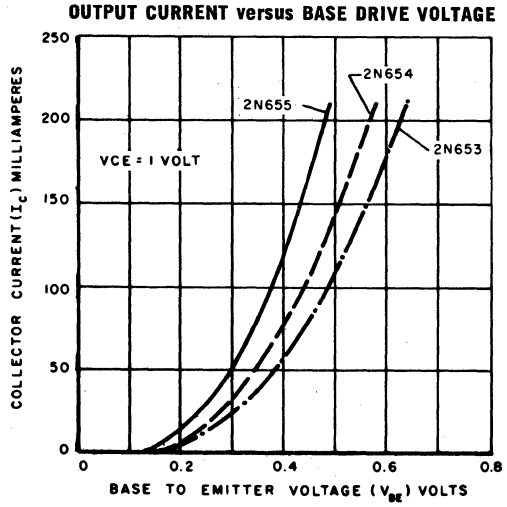
SMALL SIGNAL CURRENT GAIN (h_{fe}) versus TEMPERATURE



POWER-TEMPERATURE DERATING CURVE



OUTPUT CURRENT versus BASE DRIVE VOLTAGE



LARGE SIGNAL CURRENT GAIN versus COLLECTOR CURRENT
BASE TO EMITTER VOLTAGE (V_{BE}) VOLTS