

NTE213 Germanium PNP Transistor High Power, High Gain Amplifier

Description:

The NTE213 is a germanium PNP power transistor in a TO36 type package designed high-power, high-gain applications in high-reliability industrial equipment.

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	60V
Collector-Emitter Voltage, V_{CES}	75V
Collector-Base Voltage, V_{CB}	75V
Emitter-Base Voltage, V_{EB}	40V
Collector Current, I_C	30A
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	170W
Derate Above 25°C	0.5W/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+110^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	0.5 $^\circ\text{C}/\text{W}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{A}, I_B = 0$, Note 1	60	–	–	V
	$V_{(BR)CES}$	$I_C = 300\text{mA}, V_{BE} = 0$, Note 1	75	–	–	V
Floating Potential	V_{EBF}	$V_{CB} = 75\text{V}, I_E = 0$	–	–	1.0	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 2\text{V}, I_E = 0$	–	0.8	0.2	mA
		$V_{CB} = 74\text{V}, I_E = 0$	–	0.9	4.0	mA
		$V_{CB} = 75\text{V}, I_E = 0, T_C = +71^\circ\text{C}$	–	4.0	15	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 25\text{V}, I_C = 0$	–	0.2	4.0	mA
		$V_{BE} = 30\text{V}, I_C = 0$	–	0.2	4.0	mA
		$V_{BE} = 40\text{V}, I_C = 0$	–	0.2	4.0	mA
		$V_{BE} = 40\text{V}, I_C = 0, T_C = +71^\circ\text{C}$	–	2.7	15	mA

Note 1. To avoid excessive heating of the collector junction, perform these tests with an oscilloscope.

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	$V_{CB} = 2\text{V}, I_C = 5\text{A}$	50	75	100	
		$V_{CB} = 2\text{V}, I_C = 15\text{A}$	25	47	–	
		$V_{CB} = 2\text{V}, I_C = 25\text{A}$	15	38	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 500\text{mA}$	–	0.06	0.1	V
		$I_C = 25\text{A}, I_B = 2\text{A}$	–	0.2	0.3	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 5\text{A}, I_B = 500\text{mA}$	–	0.65	1.0	V
		$I_C = 25\text{A}, I_B = 2\text{A}$	–	1.0	2.0	V
Dynamic Characteristics						
Common–Emitter Cutoff Frequency	$f_{\alpha e}$	$V_{CE} = 6\text{V}, I_C = 5\text{A}$	2.0	2.7	–	kHz

