New Jersey Semi-Conductor Products, Inc.

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2N404

JUNCTION TRANSISTOR

Germanium p-n-p Alloy Type

SWITCHING SERVICE

Maximum Ratings, *Absolute Values:*

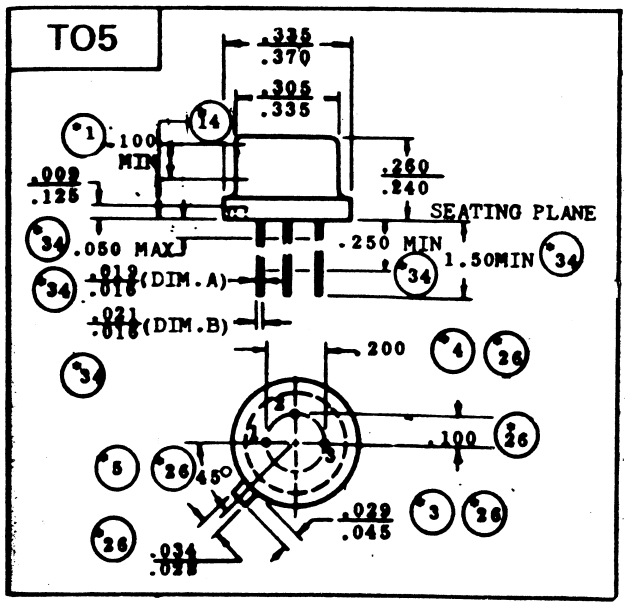
COLLECTOR-TO-BASE VOLTAGE	-25 max.	volts
COLLECTOR-TO-EMITTER VOLTAGE	-24 max.	volts
COLLECTOR CURRENT	-100 max.	ma
EMITTER-TO-BASE VOLTAGE	-12 max.	volts
EMITTER CURRENT	100 max.	ma
COLLECTOR DISSIPATION (See Rating Chart):		
At ambient temperature of 25° C.	120 max.	mw
At ambient temperature of 55° C.	35 max.	mw
At ambient temperature of 71° C.	10 max.	mw
AMBIENT TEMPERATURE:		
Operating	85 max.	°C
Storage	-65 to +85	°C

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

Voltage values are given with respect to the base unless otherwise specified. Ambient temperature = 25° C

	Typical	Min.	Max.	
DC Collector Breakdown Voltage with dc collector current = -20 μa, dc emitter current = 0.	-40	-25	-	volts
DC Collector Cutoff Current with dc collector voltage = -12 volts, dc emitter current = 0.	-2	-	-5	μa
DC Collector Cutoff Current with dc collector voltage = -12 volts, dc emitter current = 0 and ambient temperature = 80° C.	-45	-	-90	μa
DC Emitter Breakdown Voltage with dc emitter current = -20 μa, dc collector current = 0	-35	-12	-	volts
DC Emitter Cutoff Current with dc emitter voltage = -2.5 volts, dc collector current = 0.	-1	-	-2.5	μa
DC Collector-to-Emitter (Punch-Through) Voltage*.	-40	-24	-	volts
DC Collector-to-Emitter Saturation Voltage with dc collector current = -12 ma, dc base current =-0.4 ma	-0.10	-	-0.15	volt
DC Base-to-Emitter Saturation Voltage with dc collector current = -12 ma, dc base current = -0.4 ma.	-0.25	-	-0.35	volt
DC Collector-to-Emitter Saturation Voltage with dc collector current = -24 ma, dc base current =-1 ma	-0.12	-	-0.20	volt
DC Base-to-Emitter Saturation Voltage with dc collector current = -24 ma, dc base current =-1 ma	-0.32	-	-0.40	volt
Stored Base Charge▲ with DC Collector Current = -10 ma, DC Base Current =-1 ma	800	-	1400	μμcoulombs
Alpha-Cutoff Frequency with dc collector voltage = -6 volts, dc emitter current = 1 ma	12	4	-	Mc
Collector Capacitance with dc collector voltage = -6 volts, dc emitter current = 0.	12	-	20	μμf
Junction Temperature Rise in free air	0.28	-	0.35	°C/mw

* The dc collector-to-emitter (punch-through) voltage may be determined by connecting a high-impedance voltmeter (11 megohms or greater) between the emitter and base and measuring the collector-to-base voltage after causes the emitter to assume an emitter-to-base floating voltage of -1 volt. In making this test, care must be taken not to exceed the maximum collector-to-base voltage specified under Maximum Ratings.



Quality Semi-Conductors