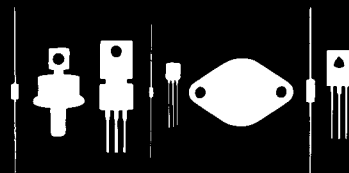


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145 Adams Avenue
Hauppauge, New York 11788



2N1302
2N1304
2N1306
2N1308

NPN GERMANIUM TRANSISTOR

JEDEC TO 5 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N1302, 2N1304, 2N1306 and 2N1308 are Germanium NPN Transistors designed for computer and switching applications.

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Collector Base Voltage	V_{CB0}	25V
Emitter Base Voltage	V_{EB0}	25V
Collector Current	I_C	300 mA
Power Dissipation	P_T	150 mW
Operating Junction Temperature	T_J	85°C
Storage Temperature	T_{stg}	-65 to 100°C

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

Symbol	Test Conditions	Type	Min	Max	Unit
I_{CBO}	$V_{CB} = 25V$	All		6.0	uA
I_{EBO}	$V_{EB} = 25V$	All		6.0	uA
V_{CBO}	$I_C = 100 \text{ uA}$	All	25		v
V_{EBO}	$I_E = 100 \text{ uA}$	All	25		v
h_{fe}	$V_{CE} = 1V, I_C = 10 \text{ mA}$	2N1302	20		-
		2N1304	40	200	-
		2N1306	60	300	-
		2N1308	80		-
h_{FE}	$V_{CE} = 0.35V, I_C = 200 \text{ mA}$	2N1302	10		-
		2N1304	15		-
		2N1306	20		-
		2N1308	20		-
$V_{CE} (s)$	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$	2N1302		0.2	v
	$I_C = 10 \text{ mA}, I_B = 0.25 \text{ mA}$	2N1304		0.2	v
	$I_C = 10 \text{ mA}, I_B = 0.17 \text{ mA}$	2N1306		0.2	v
	$I_C = 10 \text{ mA}, I_B = 0.13 \text{ mA}$	2N1308		0.2	v
$V_{BE} (s)$	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$	2N1302	0.15	0.40	v
		2N1304	0.15	0.35	v
		2N1306	0.15	0.35	v
		2N1308	0.15	0.35	v

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ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ} C$) continued

<u>Symbol</u>	<u>Test Conditions</u>	<u>Type</u>	<u>Min-</u>	<u>Max</u>	<u>Unit</u>
h _{ib}	V _{CB} = 5v	All	28 typ.		ohm
h _{rb}	I _E = 1 mA	All	5 typ.		X10 ⁻⁴
h _{ob}	f = 1 KHz	All	0.34 typ.		u mho
h _{fe}		All	140 typ.		-
NF		All	3 typ.		db
C _{ob}	V _{CB} = 5V f = 1MHZ	All	20 typ.		pf
C _{ib}	V _{EB} = 5V f = 1 MHZ	All	13 tyu.		pf
t _d	I _c = 10 mA, I _{B1} = 1.3 mA	All	0.07 typ.		u sec
t _r	I _{Bz} = 0.7 mA	All	0.2 typ.		u sec
t _s	V _{BE} (off) = 0.8V	All	0.7 typ.		u sec
t _f	R _L = 1K ohm	All	0.4 typ.		u sec
f _{hfb}	V _{CB} = 5V, I _E = 1 mA	2N1302	3		MHz
		2N1304	5		MHz
		2N1306	10		MHz
		2N1308	15		MHz

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