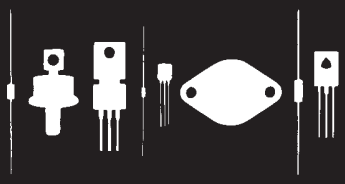
Central
Semiconductor Corp.
145 Adams Avenue
Hauppauge, New York 11788



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 ($T_A = 25^oC$)

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^oC$)

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}	$I_c = 100$ uA	All	25		v
V_{EBO}	$I_E = 100$ uA	All	25		v
h_{fe}	$V_{CE} = 1V$, $I_c = 10$ mA	2N1302	20		-
		2N1304	40	200	-
		2N1306	60	300	-
		2N1308	80		-
h_{FE}	$V_{CE} = 0.35V$, $I_c = 200$ mA	2N1302	10		-
		2N1304	15		-
		2N1306	20		-
		2N1308	20		-
V_{CE} (s)	$I_c = 10$ mA, $I_B = 0.5$ mA	2N1302		0.2	v
	$I_c = 10$ mA, $I_B = 0.25$ mA	2N1304		0.2	v
	$I_c = 10$ mA, $I_B = 0.17$ mA	2N1306		0.2	v
	$I_c = 10$ mA, $I_B = 0.13$ mA	2N1308		0.2	v
V_{BE} (s)	$I_c = 10$ mA, $I_B = 0.5$ 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 ($T_A = 25^o$ C) continued

Symbol	Test Conditions	Type	Min-	Max	Unit
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
Cob	$V_{CB} = 5V$ f = 1MHZ	All	20 typ.		pf
Cib	$V_{EB} = 5V$ 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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