SGS-THOMSON
MICROELECTRONICS

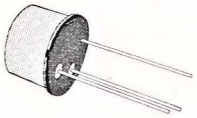
2N5320
2N5321

MEDIUM-POWER AMPLIFIERS

DESCRIPTION

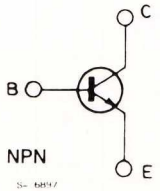
The 2N5320 and 2N5321 are silicon planar epitaxial NPN transistors in Jedec TO-39 metal case. They are especially intended for high-voltage medium power applications in industrial and commercial equipments.

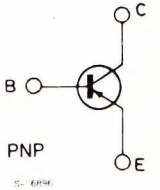
The complementary PNP types are respectively the 2N5322 and 2N5323.



TO-39

INTERNAL SCHEMATIC DIAGRAM





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N 5320	2N 5321	
V_{CBO}	Collector-base Voltage (I_E = 0)	100	75	V
V_{CEV}	Collector-emitter Voltage (V_{BE} = 1.5 V)	100	75	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	75	50	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	6	5	V
I_C	Collector Current	2		A
I_B	Base Current	1		A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	1 10		W W
T_{stg}, T_j	Storage and Junction Temperature	– 65 to 200		°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	17.5	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	For **2N5320** V_{CB} = 80 V For **2N5321** V_{CB} = 60 V			0.5 5	µA µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	For **2N5320** V_{EB} = 5 V For **2N5321** V_{EB} = 4 V		0.1 0.5		µA µA
$V_{(BR)CEV}$	Collector-emitter Breakdown Voltage (V_{BE} = 1.5 V)	I_C = 0.1 mA For **2N5320** For **2N5321**	100 75			V V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA For **2N5320** For **2N5321**	75 50			V V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 0.1 mA For **2N5320** For **2N5321**	6 5			V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 500 mA I_B = 50 mA For **2N5320** For **2N5321**			0.5 0.8	V V
V_{BE}*	Base-Emitter Voltage	I_C = 500 mA V_{CE} = 4 V For **2N5320** For **2N5321**			1.1 1.4	V V
h_{FE}*	DC Current Gain	For **2N5320** I_C = 500 mA V_{CE} = 4 V I_C = 1 A V_{CE} = 2 V For **2N5321** I_C = 500 mA V_{CE} = 4 V	30 10 40		130 250	
f_T	Transition Frequency	I_C = 50 mA V_{CE} = 4 V f = 10 MHz	50			MHz
t_{on}	Turn-on Time	I_C = 500 mA V_{CC} = 30 V I_{B1} = 50 mA			80	ns
t_{off}	Turn-off Time	I_C = 500 mA V_{CC} = 30 V $I_{B1} = -I_{B2}$ = 50 mA			800	ns

* Pulsed : pulse duration = 300 µs, duty cycle = 1 %.