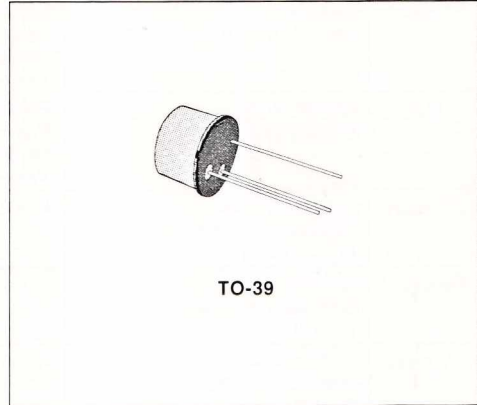


MEDIUM-POWER AMPLIFIERS

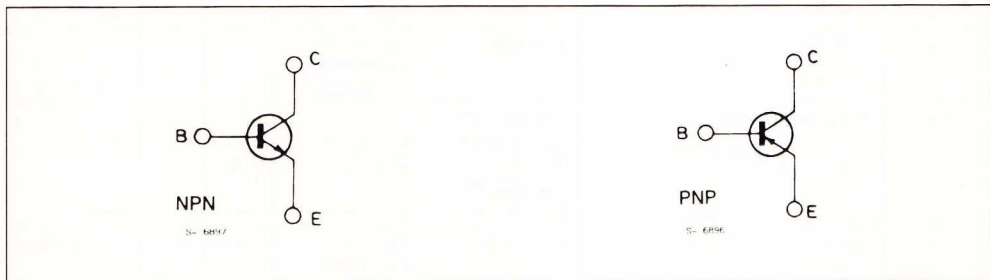
DESCRIPTION

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.



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		W
		10		W
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200		°C

THERMAL DATA

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

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

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

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