

NPN general purpose transistor

2N2484

FEATURES

- Low current (max. 50 mA)
- Low voltage (max. 60 V)

APPLICATIONS

- General purpose switching and amplification
- High performance (low-level), low-noise amplifier applications both for direct current and frequencies up to 100 MHz.

DESCRIPTION

NPN transistor in a TO-18; SOT18 metal package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector, connected to the case

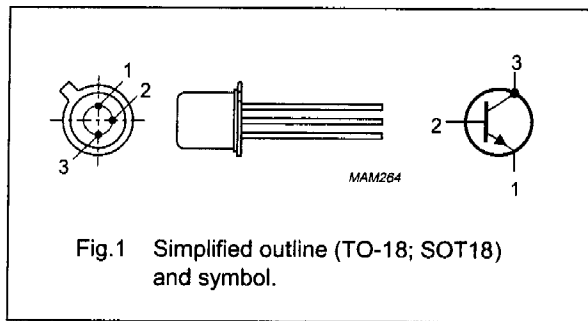
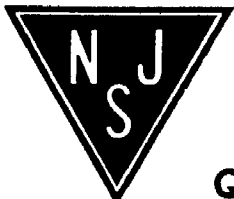


Fig. 1 Simplified outline (TO-18; SOT18) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CB0}	collector-base voltage	open emitter	-	-	60	V
V_{CEO}	collector-emitter voltage	open base	-	-	60	V
I_{CM}	peak collector current		-	-	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ C$	-	-	360	mW
h_{FE}	DC current gain	$I_C = 10 \mu A; V_{CE} = 5 V$	100	-	500	
		$I_C = 1 mA; V_{CE} = 5 V$	250	-	-	
		$I_C = 10 mA; V_{CE} = 5 V$	-	-	800	
f_T	transition frequency	$I_C = 0.5 mA; V_{CE} = 5 V; f = 100 MHz$	60	80	-	MHz



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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	-	60	V
V_{CEO}	collector-emitter voltage	open base	-	60	V
V_{EBO}	emitter-base voltage	open collector	-	6	V
I_C	collector current (DC)		-	50	mA
I_{CM}	peak collector current		-	100	mA
I_{BM}	peak base current		-	50	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	-	360	mW
T_{stg}	storage temperature		-65	+150	$^\circ\text{C}$
T_j	junction temperature		-	200	$^\circ\text{C}$
T_{amb}	operating ambient temperature		-65	+150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	480	K/W
$R_{th\ j-c}$	thermal resistance from junction to case	150	K/W

CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 45\text{ V}$	-	-	10	nA
		$I_E = 0; V_{CB} = 45\text{ V}; T_j = 150\text{ }^\circ\text{C}$	-	-	10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	-	-	10	nA
h_{FE}	DC current gain	$I_C = 1\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	30	-	-	
		$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	100	-	500	
		$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; T_j = 55\text{ }^\circ\text{C}$	20	-	-	
		$I_C = 100\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	175	-	-	
		$I_C = 500\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	200	-	-	
		$I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$	250	-	-	
		$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; \text{note 1}$	-	-	800	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 1\text{ mA}; I_B = 0.1\text{ mA}$	-	-	350	mV
V_{BE}	base-emitter voltage	$I_C = 0.1\text{ mA}; V_{CE} = 5\text{ V}$	500	-	700	mV
C_c	collector capacitance	$I_E = I_e = 0; V_{CB} = 5\text{ V}; f = 1\text{ MHz}$	-	-	6	pF
C_e	emitter capacitance	$I_C = I_e = 0; V_{EB} = 0.5\text{ V}; f = 1\text{ MHz}$	-	9	-	pF
f_T	transition frequency	$I_C = 50\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	15	-	-	MHz
		$I_C = 500\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	60	80	-	MHz
F	noise figure	$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 10\text{ k}\Omega$				
		$f = 100\text{ Hz}; B = 20\text{ Hz}$	-	-	10	dB
		$f = 1\text{ kHz}; B = 200\text{ Hz}$	-	-	3	dB
		$f = 10\text{ kHz}; B = 2\text{ kHz}$	-	-	2	dB
		Wide band; $B = 15.7\text{ kHz}$	-	-	3	dB

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.01$.