PNP medium power transistors | BSV15; BSV16; BSV17

FEATURES

- High current (max. 1 A)
- Low voltage (max. 80 V).

APPLICATIONS

- General industrial applications.

DESCRIPTION

PNP medium power transistor in a TO-39 metal package.

PINNING

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

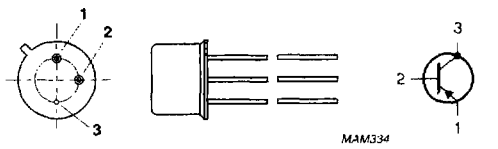

Fig.1 Simplified outline (TO-39) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BSV15		–	−40	V
	BSV16		–	−60	V
	BSV17		–	−90	V
V_{CEO}	collector-emitter voltage	open base			
	BSV15		–	−40	V
	BSV16		–	−60	V
	BSV17		–	−80	V
I_{CM}	peak collector current		–	−2	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	0.8	W
		$T_{case} \leq 25$ °C	–	5	W
h_{FE}	DC current gain	$I_C = -100$ mA; $V_{CE} = -1$ V			
	BSV15-10; BSV16-10; BSV17-10		63	160	
	BSV15-16; BSV16-16		100	250	
f_T	transition frequency	$I_C = -50$ mA; $V_{CE} = -10$ V; f = 100 MHz	50	–	MHz

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			
	BSV15		–	–40	V
	BSV16		–	–60	V
	BSV17		–	–90	V
V_{CEO}	collector-emitter voltage	open base			
	BSV15		–	–40	V
	BSV16		–	–60	V
	BSV17		–	–80	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–2	A
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	800	mW
		$T_{case} \leq 25$ °C	–	5	W
		$T_{mb} \leq 50$ °C	–	5	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	200	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	in free air	220	K/W
$R_{th\ j\text{-}mb}$	thermal resistance from junction to mounting base		30	K/W
$R_{th\ j\text{-}c}$	thermal resistance from junction to case		35	K/W

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current					
	BSV15	I_E = 0; V_{CB} = −40 V	−	−	−100	nA
		I_E = 0; V_{CB} = −40 V; T_{amb} = 150 °C	−	−	−50	µA
I_{CBO}	collector cut-off current					
	BSV16	I_E = 0; V_{CB} = −60 V	−	−	−100	nA
		I_E = 0; V_{CB} = −60 V; T_{amb} = 150 °C	−	−	−50	µA
I_{CBO}	collector cut-off current					
	BSV17	I_E = 0; V_{CB} = −80 V	−	−	−100	nA
		I_E = 0; V_{CB} = −80 V; T_{amb} = 150 °C	−	−	−50	µA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = −4 V	−	−	−50	nA
h_{FE}	DC current gain	I_C = −0.1 mA; V_{CE} = −1 V				
	BSV15-10; BSV16-10; BSV17-10		20	75	−	
	BSV15-16; BSV16-16		30	120	−	
h_{FE}	DC current gain	I_C = −100 mA; V_{CE} = −1 V				
	BSV15-10; BSV16-10; BSV17-10		63	100	160	
	BSV15-16; BSV16-16		100	160	250	
h_{FE}	DC current gain	I_C = −500 mA; V_{CE} = −1 V				
	BSV15-10; BSV16 -10; BSV17-10		25	55	−	
	BSV15-16; BSV16-16		35	85	−	
V_{CEsat}	collector-emitter saturation voltage	I_C = −500 mA; I_B = −25 mA	−	−	−1	V
V_{BE}	base-emitter voltage	I_C = −100 mA; V_{CE} = −1 V	−	−	−1	V
		I_C = −500 mA; V_{CE} = −1 V	−0.7	−0.85	−1.4	V
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = −10 V; f = 1 MHz				
	BSV15; BSV16		−	20	30	pF
	BSV17		−	15	25	pF
C_e	emitter capacitance	I_C = i_c = 0; V_{EB} = −0.5 V; f = 1 MHz	−	180	−	pF
f_T	transition frequency	I_C = −50 mA; V_{CE} = −10 V; f = 100 MHz	50	−	−	MHz
Switching times (between 10% and 90% levels)						
t_{on}	turn-on time	I_{Con} = −100 mA; I_{Bon} = −5 mA; I_{Boff} = 5 mA	−	−	500	ns
t_{off}	turn-off time		−	−	650	ns