

## PNP BSV15 – BSV16 – BSV17

### MEDIUM POWER TRANSISTORS

They are silicon transistors mounted in TO-39 metal package.  
They are intended for general industrial applications.  
High current and low voltage.  
Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CBO}$	Collector-Base Voltage $I_E = 0$	BSV15	-40	V
		BSV16	-60	
		BSV17	-90	
$V_{CEO}$	Collector-Emitter Voltage $I_B = 0$	BSV15	-40	V
		BSV16	-60	
		BSV17	-90	
$V_{EBO}$	Emitter-Base Voltage $I_C = 0$	-5	V	
$I_C$	Collector Current	-1	A	
$I_{CM}$	Peak Collector Current	-2	A	
$I_{BM}$	Peak Base Current	-0.2	A	
$P_{tot}$	Total Power Dissipation	@ $T_{case} = < 25^\circ$	0.8	W
		@ $T_{amb} = < 25^\circ$	5	
		@ $T_{mb} = < 50^\circ$	5	
$T_J$	Junction Temperature	200	$^\circ C$	
$T_{Stg}$	Storage Temperature Range	-65 to +150	$^\circ C$	
$T_{amb}$	Operating Ambient Temperature	-65 to +150	$^\circ C$	

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-c}$	Thermal Resistance, Junction-case	35	K/ W
$R_{thJ-amb}$	Thermal Resistance, Junction-ambient in free air	220	K/ W
$R_{thJ-mb}$	Thermal Resistance, Junction to mounting base	30	K/ W

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit	
$I_{CBO}$	Collector – Cutoff Current	$I_E = 0, V_{CB} = -40\text{ V}$		BSV15	-	-100	nA	
		$I_E = 0, V_{CB} = -60\text{ V}$		BSV16				
		$I_E = 0, V_{CB} = -80\text{ V}$		BSV17				
		$I_E = 0, V_{T_{amb}} = 150^\circ\text{C}$	$V_{CB} = -40\text{ V}$	BSV15	-	-	-50	$\mu\text{A}$
$V_{CB} = -60\text{ V}$	BSV16							
$V_{CB} = -80\text{ V}$	BSV17							
$I_{EBO}$	Emitter – Cutoff Current	$I_C = 0, V_{CE} = -4\text{ V}$		BSV15	-	-	-50	nA
		BSV16						
		BSV17						
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = -500\text{ mA}, I_B = -25\text{ mA}$		BSV15	-	-	-1	V
		BSV16						
		BSV17						
$V_{BE}$	Base-Emitter Voltage (*)	$I_C = -100\text{ mA}, V_{CE} = -1\text{ V}$		BSV15	-	-	-1	V
				BSV16				
				BSV17				
		$I_C = -500\text{ mA}, V_{CE} = -1\text{ V}$		BSV15	-	-	-1	V
BSV16								
BSV17								
$h_{FE}$	DC Current Gain (*)	$I_C = -100\ \mu\text{A}, V_{CE} = -1\text{ V}$	Gr.10	BSV15	20	75	-	-
				BSV16				
				BSV17				
			Gr.16	BSV15				
				BSV16				
				BSV17				
		$I_C = -100\text{ mA}, V_{CE} = -1\text{ V}$	Gr.10	BSV15	63	100	160	
				BSV16				
				BSV17				
			Gr.16	BSV15				
				BSV16				
				BSV17				
$I_C = -500\text{ mA}, V_{CE} = -1\text{ V}$	Gr.10	BSV15	25	55	-			
		BSV16						
		BSV17						
	Gr.16	BSV15						
		BSV16						
		BSV17						

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$f_T$	Transition Frequency	$I_C = -50 \text{ mA}$ , $V_{CE} = -10 \text{ V}$ $f = 100 \text{ MHz}$	50	-	-	MHz	
$C_C$	Collector Capacitance	$I_E = i_e = 0$ , $V_{CB} = -10 \text{ V}$ $f = 1 \text{ MHz}$	BSV15	-	20	30	pF
			BSV16	-	15	25	
			BSV17	-	15	25	
$C_E$	Emitter Capacitance	$I_E = i_e = 0$ , $V_{CB} = -10 \text{ V}$ $f = 1 \text{ MHz}$	-	180	-	pF	

### SWITCHING TIME

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$t_{off}$	Turn-off times	$I_C = -100 \text{ mA}$ $I_{Bon} = -5 \text{ mA}$ $I_{Boff} = 5 \text{ mA}$	-	-	650	ns
$t_{on}$	Turn-on times		-	-	500	ns

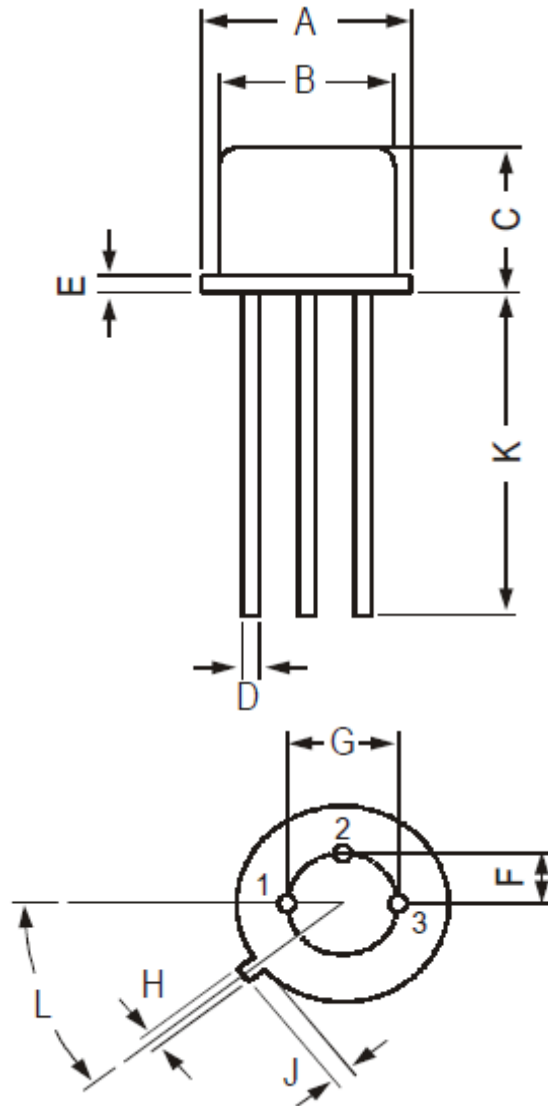
(\*) Pulsed : pulse duration = 300µs, duty cycle = 1%

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### MECHANICAL DATA CASE TO-39

DIMENSIONS (mm)		
	min	max
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	-	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.70	-
L	42°	48°

Pin 1 :	Emitter
Pin 2 :	Base
Pin 3 :	Collector
Case :	Collector



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