

NPN BSS50A-51A-52A

SILICON PLANAR EPITAXIAL TRANSISTORS

They are NPN transistors mounted in TO-39 metal package.

They are designed for use in industrial switching applications e.g. print hammer, solenoid, relay and lamp driving .

PNP complements are the BSS60A – 61A – 62A .

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
V_{CBO}	Collector-Base Voltage	BSS50A	60	V
		BSS51A	80	
		BSS52A	90	
V_{CER}	Collector-Emitter Voltage $V_{BE} = 0$	BSS50A	45	V
		BSS51A	60	
		BSS52A	80	
V_{EBO}	Emitter-Base Voltage	5	V	
I_C	Collector Current	I_C	1	A
		I_{CM}	2	
I_B	Base Current	0.1	A	
P_{tot}	Total Power Dissipation	@ $T_{case} = 25^\circ$	5	W
		@ $T_{amb} = 25^\circ$	0.8	
T_J	Junction Temperature	200	$^\circ C$	
T_{Stg}	Storage Temperature range	-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	220	K/ W

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ELECTRICAL CHARACTERISTICS

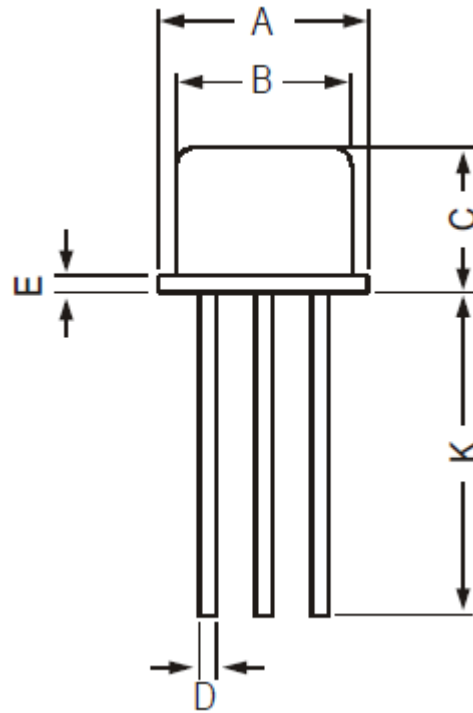
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
I_{CBO}	Collector Cutoff Current	$I_E = 0 ; V_{CB} = 45V$	BSS50A	-	-	50	nA
		$I_E = 0 ; V_{CB} = 60V$	BSS51A				
		$I_E = 0 ; V_{CB} = 80V$	BSS52A				
I_{EBO}	Emitter Cutoff Current	$I_C = 0 ; V_{EB} = 4 V$	BSS50A	-	-	700	μA
			BSS51A				
			BSS52A				
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	$I_C = 500 \text{ mA} , I_B = 0.5 \text{ mA}$		-	-	1.3	V
		$I_C = 500 \text{ mA} , I_B = 0.5 \text{ mA}$ $T_j = 200^\circ C$		-	-	1.3	
		$I_C = 1 \text{ A} , I_B = 1 \text{ mA}$	BSS51A	-	-	1.6	
		$I_C = 1 \text{ A} , I_B = 1 \text{ mA}$ $T_j = 200^\circ C$		-	-	2.3	
		$I_C = 1 \text{ A}$ $I_B = 4 \text{ mA}$	BSS50A / BSS52A	-	-	1.6	
		$I_C = 1 \text{ A}$ $I_B = 4 \text{ mA}$ $T_j = 200^\circ C$		-	-	1.6	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage	$I_C = 500 \text{ mA} , I_B = 0.5 \text{ mA}$		-	-	1.9	
		$I_C = 1 \text{ A}$ $I_B = 1 \text{ mA}$	BSS51A	-	-	2.2	
		$I_C = 1 \text{ A}$ $I_B = 4 \text{ mA}$	BSS50A / BSS52A	-	-	2.2	
h_{FE}	DC Current Gain	$I_C = 150 \text{ mA}$ $V_{CE} = 10 \text{ V}$	BSS50A	800	-	-	-
			BSS51A				
			BSS52A				
		$I_C = 500 \text{ mA}$ $V_{CE} = 10 \text{ V}$	BSS50A	2000	-	-	
			BSS51A				
			BSS52A				
h_{fe}	Small Signal Current Gain	$I_C = 500 \text{ mA}$ $V_{CE} = 5 \text{ V}$ $f = 35 \text{ MHz}$	BSS50A	-	10	-	-
			BSS51A				
			BSS52A				
t_{on}	Switching times	$I_{Con} = 500 \text{ mA}$ $I_{B1} = -I_{B2} = 0.5 \text{ mA}$	-	0.4	-	μs	
t_{off}			-	1.5	-		
t_{on}	Switching times	$I_{Con} = 1 \text{ mA}$ $I_{B1} = -I_{B2} = 1 \text{ mA}$	-	0.4	-	μs	
t_{off}			-	1.5	-		

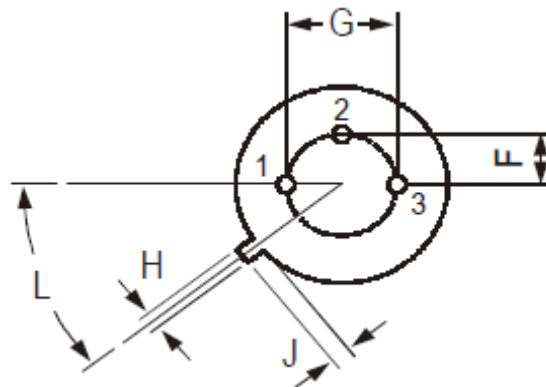
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MECHANICAL DATA CASE TO-39

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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