

## 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

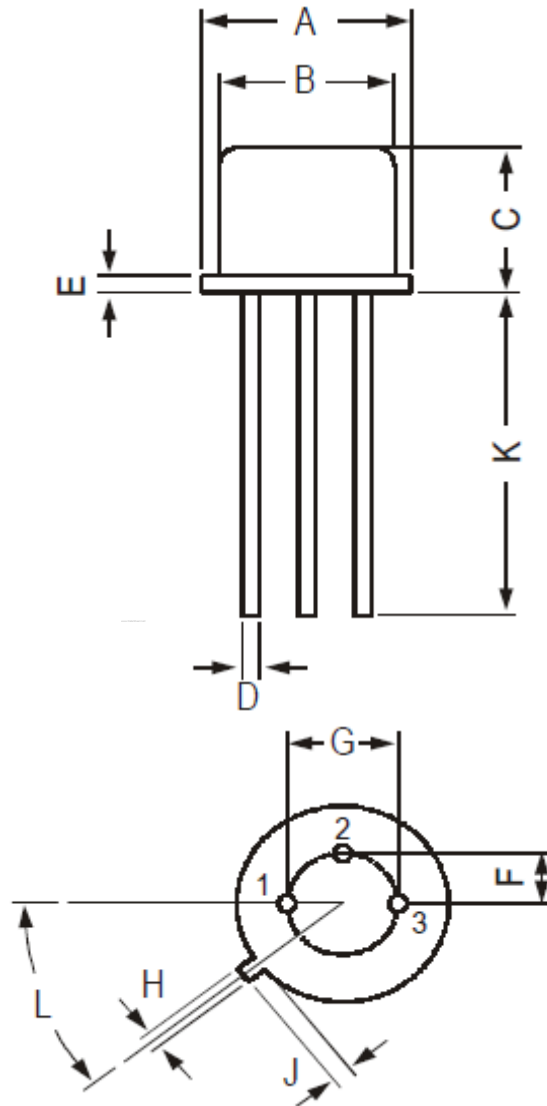
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$I_{CBO}$	Collector Cutoff Current	$I_E=0; V_{CB}=45V$	BSS50A	-	-	50	nA
		$I_E=0; V_{CB}=60V$	BSS51A				
		$I_E=0; V_{CB}=80V$	BSS52A				
$I_{EBO}$	Emitter Cutoff Current	$I_C=0; V_{EB}=4V$	BSS50A	-	-	700	$\mu A$
			BSS51A				
			BSS52A				
$V_{CE(SAT)}$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



Revised september 2012

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