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°		5	W
		@ T_{amb}= 25°		0.8	
T_J	Junction Temperature			200	°C
T_{Stg}	Storage Temperature range			-65 to +150	°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

NPN BSS50A-51A-52A

ELECTRICAL CHARACTERISTICS

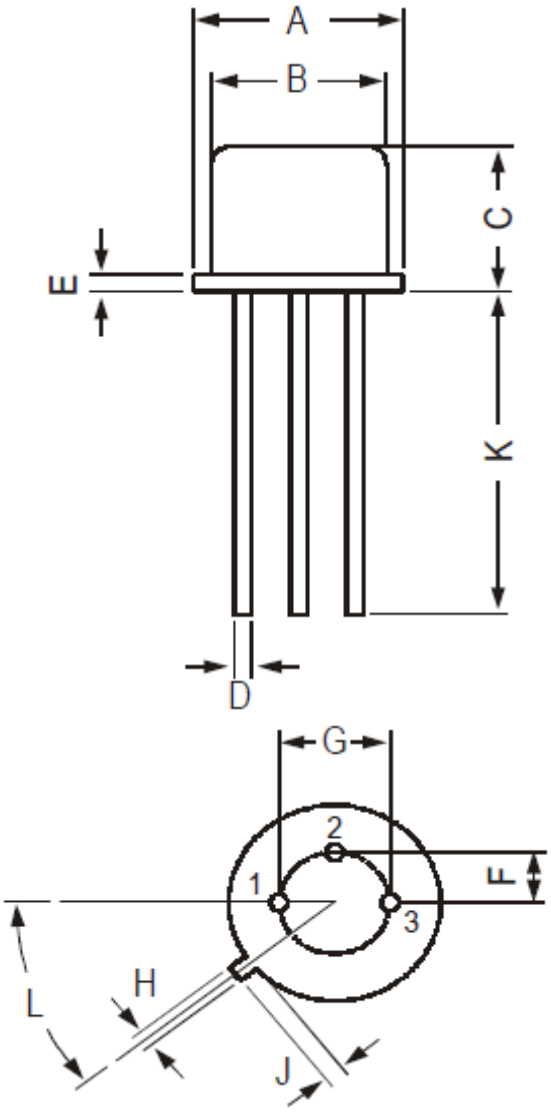
TC=25°C unless otherwise noted

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_{EB0}	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 mA , I_B=0.5 mA		-	-	1.3	V
		I_C=500 mA , I_B=0.5 mA T_j=200°C		-	-	1.3	
		I_C=1 A, I_B=1 mA	BSS51A	-	-	1.6	
		I_C=1 A, I_B=1 mA T_j=200°C	BSS51A	-	-	2.3	
		I_C=1 A I_B=4 mA	BSS50A / BSS52A	-	-	1.6	
		I_C=1 A I_B=4 mA T_j=200°C	BSS50A / BSS52A	-	-	1.6	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage	I_C=500 mA , I_B=0.5 mA		-	-	1.9	
		I_C=1 A I_B=1 mA	BSS51A	-	-	2.2	
		I_C=1 A I_B=4 mA	BSS50A / BSS52A	-	-	2.2	
h_{FE}	DC Current Gain	I_C=150 mA V_{CE}=10 V	BSS50A	800	-	-	-
			BSS51A				
			BSS52A				
		I_C=500 mA V_{CE}=10 V	BSS50A	2000	-	-	
			BSS51A				
			BSS52A				
h_{fe}	Small Signal Current Gain	I_C=500 mA V_{CE}=5 V f = 35 MHz	BSS50A	-	10	-	-
			BSS51A				
			BSS52A				
t_{on}	Switching times	I_{Con}=500 mA I_{B1}=-I_{B2}=0.5 mA		-	0.4	-	µs
t_{off}				-	1.5	-	
t_{on}	Switching times	I_{Con}=1 mA I_{B1}=-I_{B2}=1 mA		-	0.4	-	µs
t_{off}				-	1.5	-	

NPN BSS50A-51A-52A

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