

## SILICON NPN TRANSISTOR

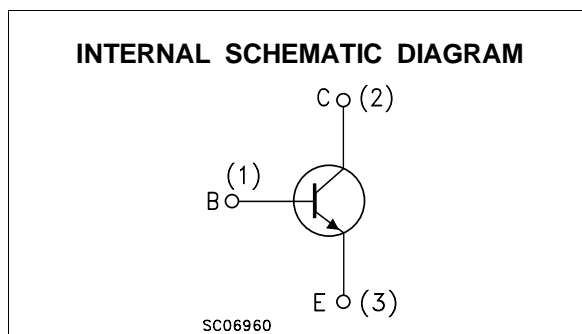
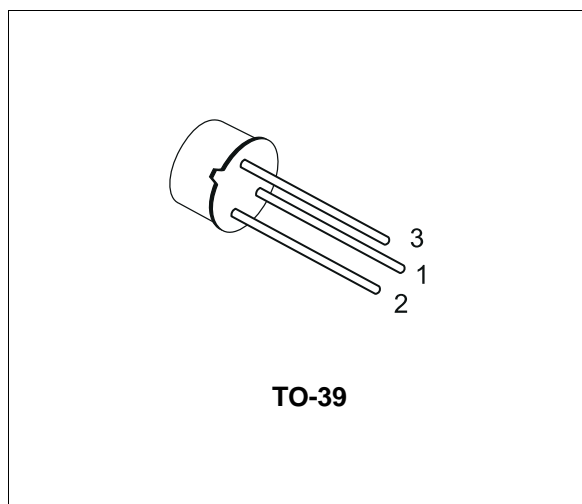
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- FAST SWITCHING SPEED
- LOW COLLECTOR-EMITTER SATURATION

### APPLICATIONS

- GENERAL PURPOSE SWITCHING

### DESCRIPTION

The BUY49S is a silicon epitaxial planar NPN transistor in jedec TO-39 package. It is used in high-current switching applications up to 3 A.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	250	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	200	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	6	V
$I_C$	Collector Current	3	A
$I_{CM}$	Collector Peak Current	5	A
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25\text{ }^{\circ}\text{C}$	10	W
$T_{stg}$	Storage Temperature	- 65 to 200	$^{\circ}\text{C}$
$T_j$	Max Operating Junction Temperature	200	$^{\circ}\text{C}$

# THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	15	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-case-ambient	Max	175	°C/W

# ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

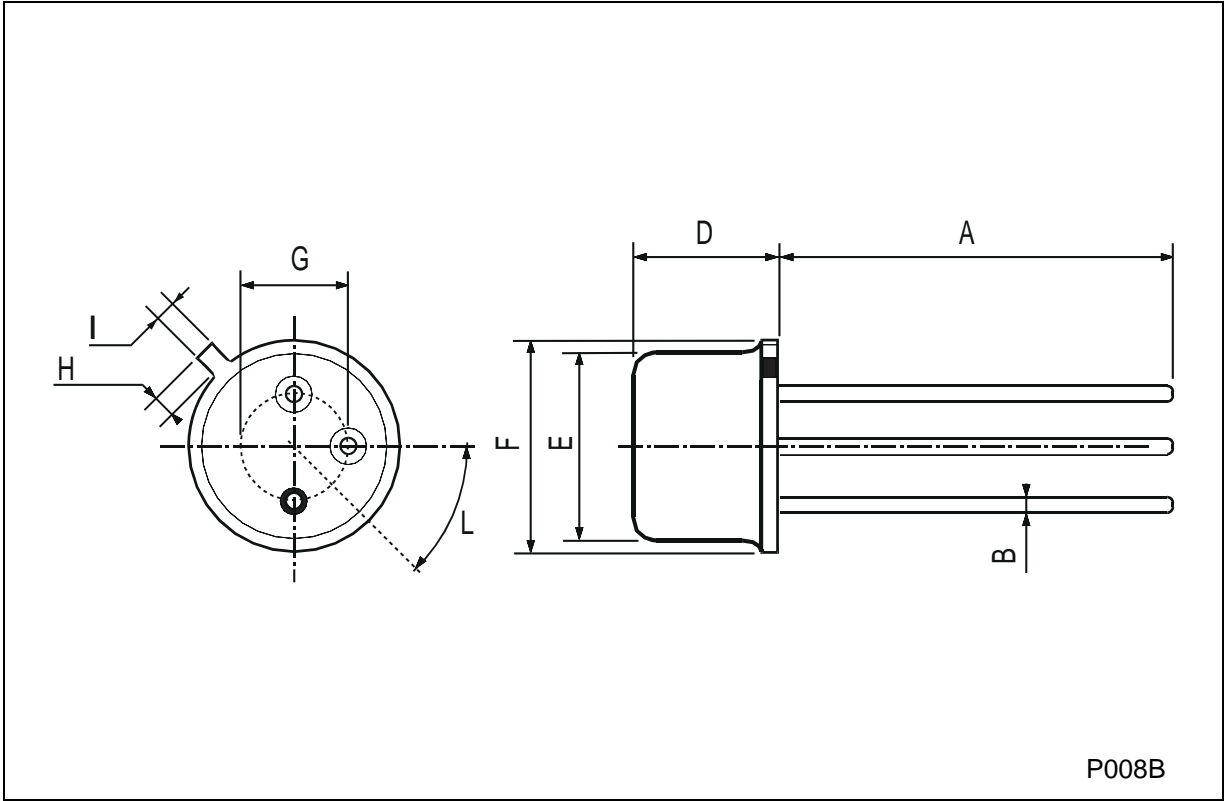
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0 )	V <sub>CB</sub> = 200 V V <sub>CB</sub> = 200 V T <sub>case</sub> = 150 °C			0.1 50	μA μA
V <sub>(BR)CBO</sub> *	Collector-Base Breakdown Voltage (I <sub>E</sub> = 0 )	I <sub>C</sub> = 100 μA	250			V
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 20 mA	200			V
V <sub>EBO</sub> *	Emitter-base Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 1 mA	6			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 0.5 A I <sub>B</sub> = 50 mA			0.2	V
V <sub>BE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 0.5 A I <sub>B</sub> = 50 mA			1.1	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 20 mA V <sub>CE</sub> = 5 V I <sub>C</sub> = 0.5 A V <sub>CE</sub> = 5 V I <sub>C</sub> = 20 mA V <sub>CE</sub> = 2 V T <sub>case</sub> = - 55 °C	40 40 16	80		
f <sub>T</sub>	Transistor Frequency	I <sub>C</sub> = 100 mA V <sub>CE</sub> = 10 V	50			MHz
C <sub>CBO</sub>	Collector-base Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = 10 V f = 1 MHz			30	pF
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 0.5 A V <sub>CC</sub> = 20 V			0.3	μs
t <sub>off</sub>	Turn-off Time	I <sub>B1</sub> = - I <sub>B2</sub> = 50 mA			1	μs
I <sub>s/b</sub> **	Second Breakdown Collector Current	V <sub>CE</sub> = 50 V	0.2			A

\* Pulsed: Pulse duration = 300 μs, duty cycle = 1.5 %

\*\* Pulsed: 1 s, non repetitive pulse.

TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



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