BUY 47

SILICON PLANAR NPN

HIGH VOLTAGE, HIGH CURRENT SWITCH

The BUY 47 is a silicon planar epitaxial NPN transistor in a TO-39 metal case. It is used in high-voltage, high-current switching applications up to 5 A.

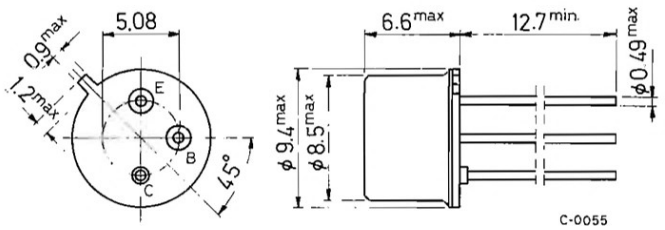
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ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	150	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	120	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	6	V
I_C	Collector current	10	A
P_{tot}	Total power dissipation at $T_{amb} \leq 25$ °C	1	W
	at $T_{case} \leq 25$ °C	7	W
T_{stg}	Storage temperature	-55 to 200	°C
T_j	Junction temperature	200	°C

MECHANICAL DATA

Dimensions in mm



(sim. to **TO-39**)

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THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	25	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	175	°C/W

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current (I_E = 0)	V_{CB} = 80 V			10	μA
		V_{CB} = 80 V T_{amb} = 125 °C			1	mA
$V_{(BR)CEO}$*	Collector-emitter breakdown voltage (I_B = 0)	I_C = 20 mA	120			V
$V_{(BR)CBO}$	Collector-base breakdown voltage (I_E = 0)	I_C = 1 mA	150			V
$V_{(BR)EBO}$*	Emitter-base breakdown voltage (I_C = 0)	I_E = 1 mA	6			V
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	I_C = 0.5 A I_B = 50 mA		0.1		V
		I_C = 2 A I_B = 0.2 A		0.2	0.45	V
		I_C = 5 A I_B = 0.5 A		0.55	1	V
$V_{BE\ (sat)}$*	Base-emitter saturation voltage	I_C = 0.5 A I_B = 50 mA		0.75		V
		I_C = 2 A I_B = 0.2 A		1	1.1	V
		I_C = 5 A I_B = 0.5 A		1.15	1.5	V
h_{FE}*	DC current gain	I_C = 50 mA V_{CE} = 5 V		130		—
		I_C = 0.5 A V_{CE} = 5 V	40	150		—
		I_C = 2 A V_{CE} = 5 V	40	130		—
		I_C = 5 A V_{CE} = 5 V	15	45		—
f_T	Transition frequency	I_C = 100 mA V_{CE} = 10 V		90		MHz
C_{CBO}	Collector-base capacitance	I_E = 0 V_{CB} = 50 V		45	80	pF
t_{on}	Turn-on time	I_C = 5 A I_{B1} = 0.5 A		0.1	1	μs
t_{off}	Turn-off time	I_C = 5 A I_{B1} = I_{B2} = 0.5 A		1.2	2	μs

* Pulsed: pulse duration = 300 μs, duty factor = 1%.