SILICON PLANAR NPN

BUY 18S

FAST SWITCHING HIGH VOLTAGE POWER

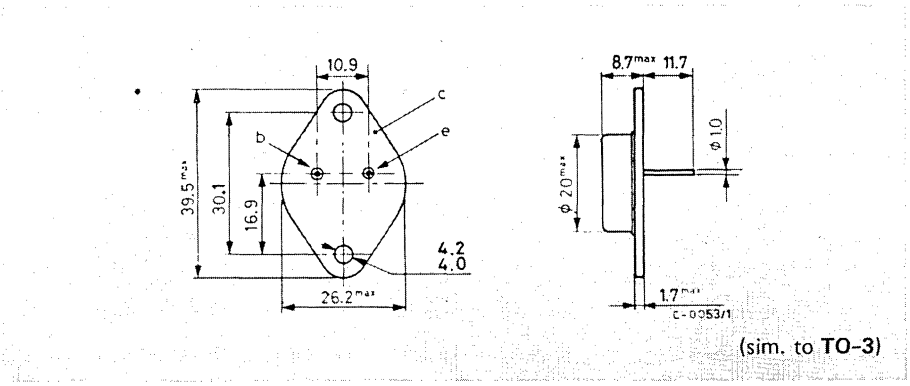
The BUY 18S is a silicon planar epitaxial NPN transistor in Jedec TO-3 metal case. It is intended for high-voltage switching power applications.

ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	400	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	7	A
I_{CM}	Collector peak current (repetitive)	10	A
I_{CM}	Collector peak current ($t \leqslant 10$ ms)	15	A
I_B	Base current	4	A
P_{tot}	Total power dissipation at $T_{case} \leqslant 75$ °C	50	W
T_{stg}	Storage temperature	-55 to 175	°C
T_j	Junction temperature	175	°C

MECHANICAL DATA

Dimensions in mm



(sim. to TO-3)

BUY 18S

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	2	°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}= 200V V_{CB}= 200V	T_{amb}= 100°C			10 2	μA mA
$V_{(BR)CBO}$*	Collector-base breakdown voltage (I_E = 0)	I_C = 5 mA		400			V
$V_{(BR)EBO}$*	Emitter-base breakdown voltage (I_C = 0)	I_E = 1 mA		6			V
$V_{CEO(sus)}$*	Collector-emitter sustaining voltage (I_B = 0)	I_C = 20 mA		200			V
$V_{CE(sat)}$*	Collector-emitter saturation voltage	I_C = 5A I_C = 7A	I_B = 0.5A I_B = 0.7A		 0.6	1	V V
$V_{BE(sat)}$*	Base-emitter saturation voltage	I_C = 5A I_C = 7A	I_B = 0.5A I_B = 0.7A		 1.2	1.4 1.6	V V
h_{FE}*	DC current gain	I_C = 1A	V_{CE}= 5V	20	40		–
f_T	Transition frequency	I_C = 0.5	V_{CE}= 10V		50		MHz
C_{CBO}	Collector-base capacitance	I_E = 0 f = 1 MHz	V_{CB}= 50V		55		pF
t_{on}	Turn-on time	I_C = 5A	I_{B1}= 0.5A			1	μs
t_{off}	Turn-off time	I_C = 5A I_{B1}= -I_{B2}= 0.5A			0.3	1	μs
$I_{s/b}$**	Second breakdown collector current	V_{CE}= 40V				1	A

* Pulsed: pulse duration = 300 μs, duty cycle = 1%
** Pulsed: 1s, non repetitive pulse

Safe operating areas