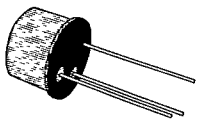
SGS-THOMSON MICROELECTRONICS

BU125

HIGH CURRENT, GENERAL PURPOSE TRANSISTOR

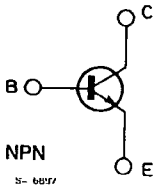
DESCRIPTION

The BU125 is a silicon epitaxial planar NPN transistor in Jedec TO–39 metal case. It is used in switching output and general purpose applications.



TO–39

INTERNAL SHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	130	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	60	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	6	V
I_C	Collector Current	7	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C $T_{amb} \leq 50$ °C	1 10	W W
T_{stg}	Storage Temperature	– 65 to 200	°C
T_j	Junction Temperature	200	°C

THERMAL DATA

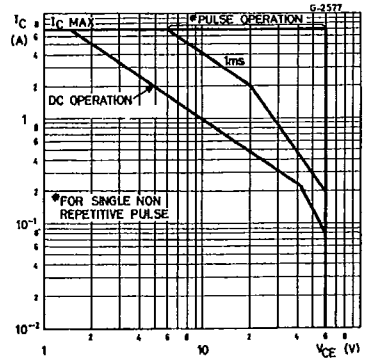
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	15	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

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

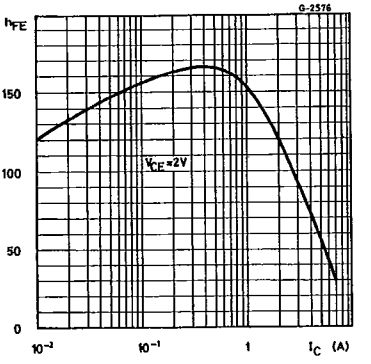
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 100 V			0.02	10	µA
$V_{(BR)CBO}$*	Collector-base Breakdown Voltage (I_E = 0)	I_C = 1 mA		130			V
$V_{(BR)CES}$*	Collector-emitter Breakdown Voltage (V_{BE} = 0)	I_C = 1 mA		130			V
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 50 mA		60			V
V_{EBO}*	Emitter-base Voltage (I_C = 0)	I_E = 1 mA		5			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 1 A I_C = 5 A	I_B = 0.1 A I_B = 0.5 A			0.25 1.2	V V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 1 A I_C = 5 A	I_B = 0.1 A I_B = 0.5 A		0.9 1.3	1 1.6	V V
h_{FE}*	DC Current Gain	I_C = 0.1 A I_C = 5 A	V_{CE} = 2 V V_{CE} = 2 V	40 15	155 60		
f_T	Transition Frequency	I_C = 0.5 A	V_{CE} = 5 V	50			MHz
C_{CBO}	Collector-base Capacitance	I_E = 0 f = 1 MHz	V_{CB} = 10 V			80	pF
t_{off}	Turn-off Time	I_C = 5 A I_{B1} = − I_{B2} = 0.5 A	V_{CC} = 20 V			0.65	µs

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

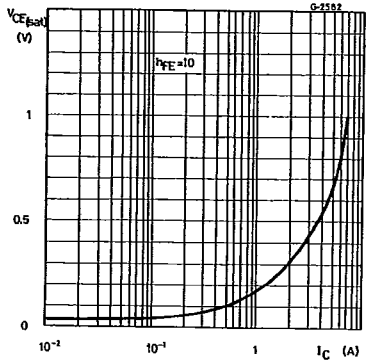
Safe Operating Areas



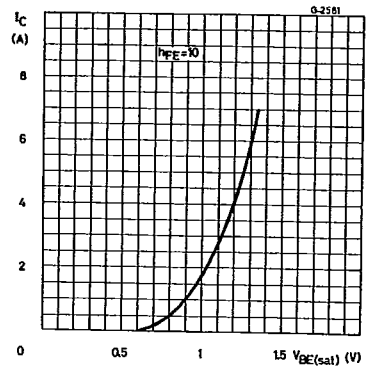
DC Current Gain



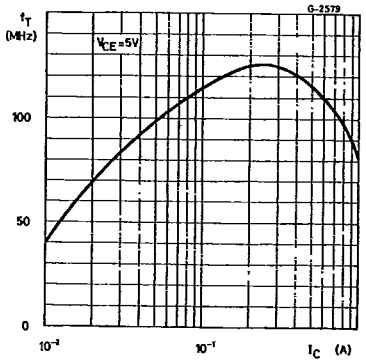
Collector–emitter Saturation Voltage



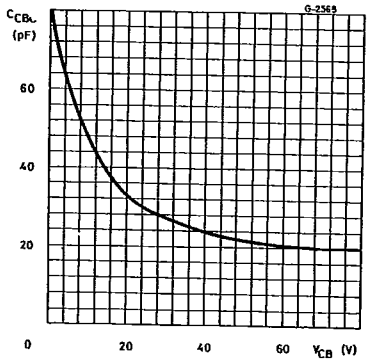
Base–emitter Saturation Voltage



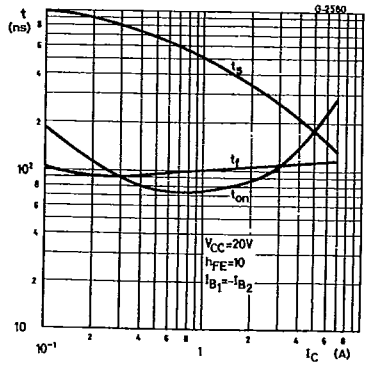
Transition Frequency



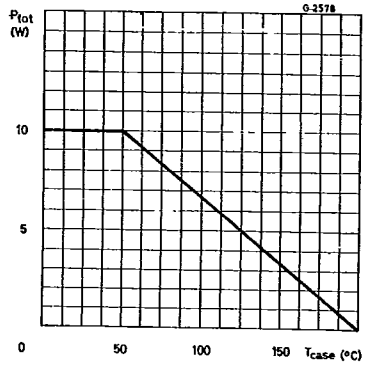
Collector–base Capacitance



Saturated Switching Characteristics



Power Rating Chart



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