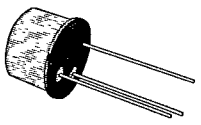
SGS-THOMSON MICROELECTRONICS

BU125S

HIGH VOLTAGE POWER AMPLIFIER

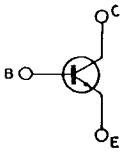
DESCRIPTION

The BU125S is a silicon epitaxial planar NPN transistor in Jedec TO–39 metal case. It is intended for general purpose, linear and switching applications.



TO–39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)	250	V
V_{CEV}	Collector-emitter Voltage (V_{BE} = – 1.5 V)	250	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	150	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	6	V
I_C	Collector Current	3	A
I_{CM}	Collector Peak Current (repetitive)	5	A
I_B	Base Current	0.5	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

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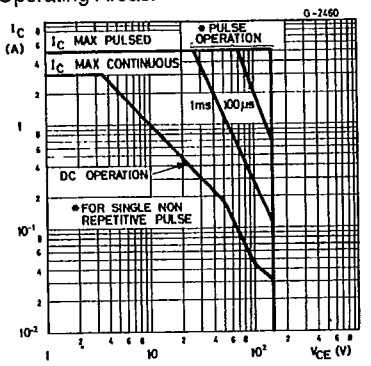
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	15	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

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

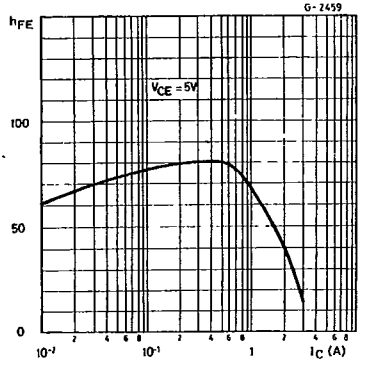
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 200 V				10	µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 6 V				1	mA
V_{CBO}	Collector-base Voltage (I_E = 0)	I_C = 1 mA		250			V
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 20 mA		150			V
$V_{CE(sat)}$	Collector-emitter Saturation Voltage	I_C = 500 mA	I_B = 50 mA			1.5	V
h_{FE}	DC Current Gain	I_C = 5 mA I_C = 250 mA	V_{CE} = 10 V V_{CE} = 3 V	30 30			
f_T	Transition Frequency	I_C = 100 mA	V_{CE} = 10 V	15			MHz
C_{CBO}	Collector-base Capacitance	I_E = 0 f = 1 MHz	V_{CB} = 20 V			35	pF
t_{on}	Turn-on Time	I_C = 0.5 A I_{B1} = − I_{B2} = 0.05 A	V_{CC} = 20 V		0.3		µs
t_{off}	Turn-off Time				1		µs

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

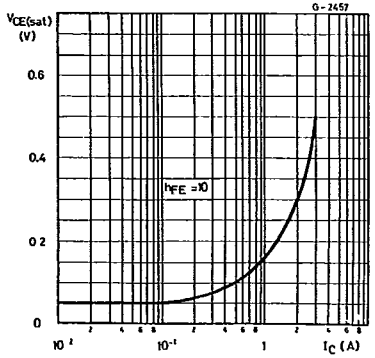
Safe Operating Areas.



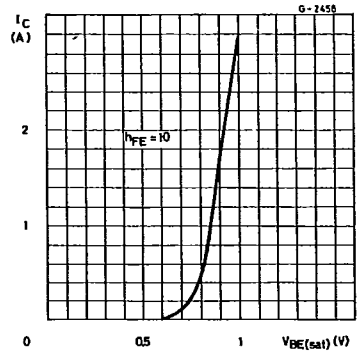
DC Current Gain.



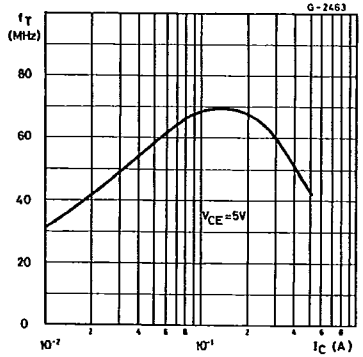
Collector–emitter Saturation Voltage.



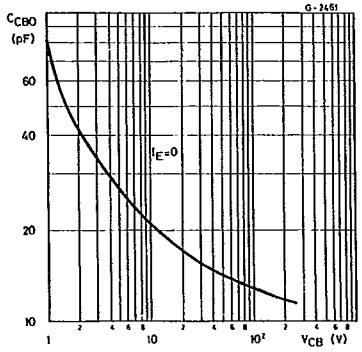
Base–emitter Saturation Voltage.



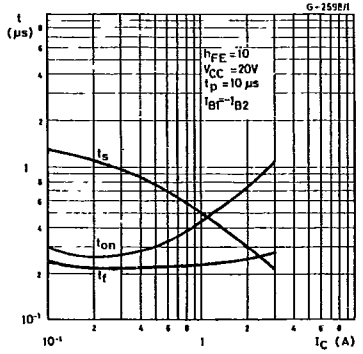
Transition Frequency.



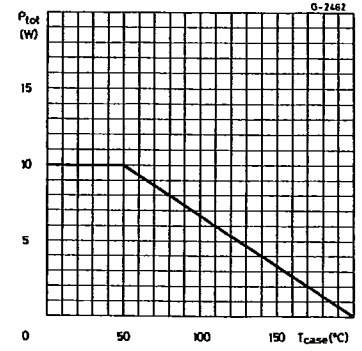
Collector–base Capacitance.



Saturated Switching Characteristics.



Power Rating Chart.



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