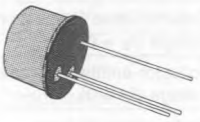
SGS-THOMSON MICROELECTRONICS

BSW67
BSW68

HIGH VOLTAGE SWITCH

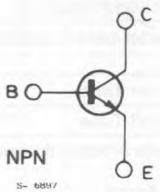
DESCRIPTION

The BSW 67 and BSW 68 are silicon epitaxial planar NPN transistors in Jedec TO-39 metal case. They are intended for high voltage inductive load switching applications.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BSW67	BSW68	
V_{CBO}	Collector-base Voltage (I_E = 0)	120	150	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	120	150	V
I_C	Collector Current	1.5		A
I_{CM}	Collector Peak Current	2		A
P_{tot}	Total Power Dissipation at $T_{amb} \leq$ 45 °C $T_{case} \leq$ 25 °C $T_{case} \leq$ 100 °C	0.7 5 2.85		W W W
T_{stg}	Storage Temperature	– 65 to 200		°C
T_j	Junction Temperature	200		°C

THERMAL DATA

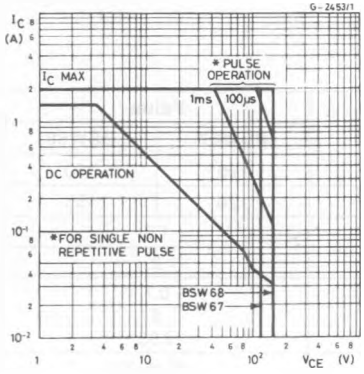
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	35	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	220	°C/W

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

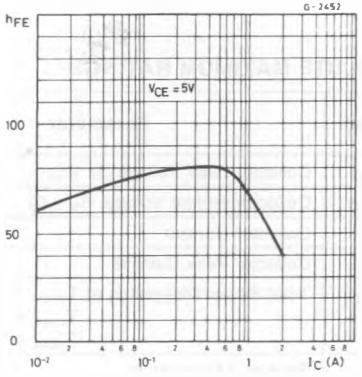
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	for **BSW67**					
		V_{CB} = 60 V				100	nA
		V_{CB} = 60 V	T_{case} = 150 °C			50	µA
		for **BSW68**					
		V_{CB} = 75 V				100	nA
		V_{CB} = 75 V	T_{case} = 150 °C			50	µA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage (I_E = 0)	I_C = 100 µA	for **BSW67**	120			V
			for **BSW68**	150			V
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA	for **BSW67**	120			V
			for **BSW68**	150			V
V_{EBO}*	Emitter-base Voltage (I_C = 0)	I_E = 100 µA		6			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 0.1 A	I_B = 0.01 A			0.15	V
		I_C = 0.5 A	I_B = 0.05 A			0.5	V
		I_C = 1 A	I_B = 0.15 A			1	V
$V_{BE(sat)}$*	Base-emitter Voltage	I_C = 0.1 A	I_B = 0.01 A			0.9	V
		I_C = 0.5 A	I_B = 0.05 A			1.1	V
		I_C = 1 A	I_B = 0.15 A			1.2	V
h_{FE}*	DC Current Gain	I_C = 0.1 A	V_{CE} = 5 V	40			
		I_C = 0.5 A	V_{CE} = 5 V	30			
		I_C = 1 A	V_{CE} = 5 V	15			
f_T	Transition Frequency	I_C = 100 mA	V_{CE} = 20 V		80		MHz
C_{CBO}	Collector-base Capacitance	I_E = 0 f = 1 MHz	V_{CB} = 10 V			35	pF
t_{on}	Turn-on Time	I_C = 0.5 A	V_{CC} = 20 V		0.3		µs
t_{off}	Turn-off Time	I_{B1} = − I_{B2} = 0.05 A			1		µs

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

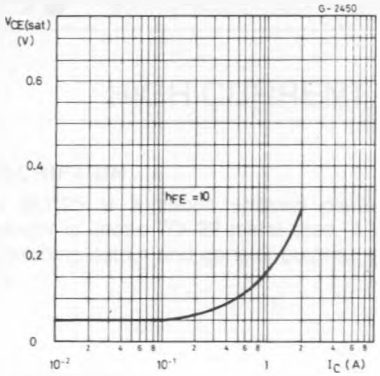
Safe Operating Areas.



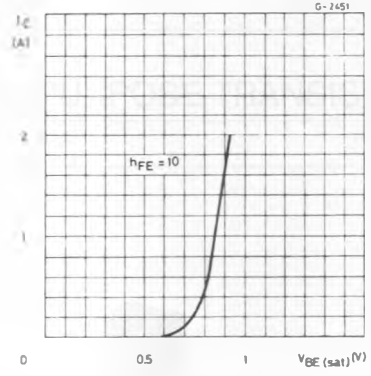
DC Current Gain.



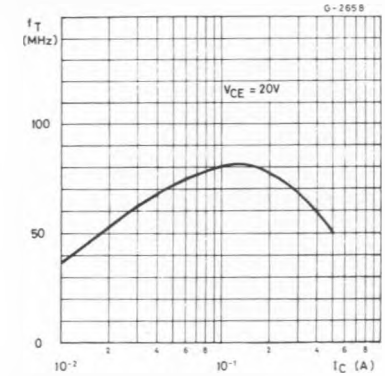
Collector-emitter Saturation Voltage.



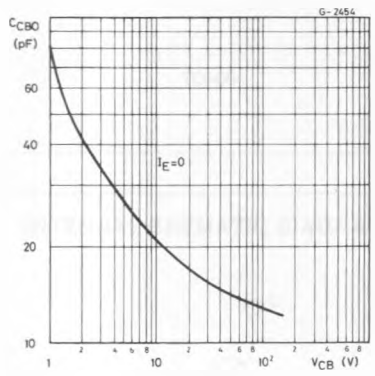
Base-emitter Saturation Voltage.



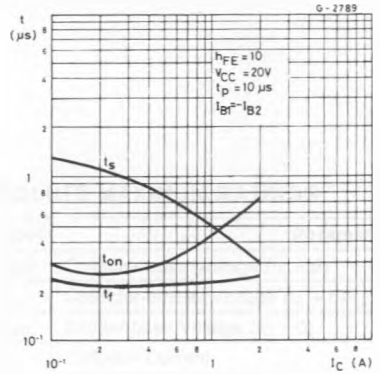
Transition Frequency.



Collector-base Capacitance.



Saturated Switching Characteristics.



Power Rating Chart.