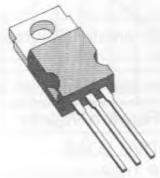
SGS-THOMSON MICROELECTRONICS

BU184
BU189

NPN SWITCHING DARLINGTONS

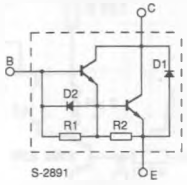
DESCRIPTION

Monolithic Darlingtons with integrated speed-up and damper diode, suited for TV applications.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BU184	BU189	
V_{CBO}	Collector-base Voltage (I_E = 0)	400	330	V
V_{CEX}	Collector-emitter Voltage	400	330	V
V_{CEO}	Collector-emitter Voltage (I_B =0)	200	150	V
V_{EBO}	Emitter-base Voltage (I_C =0)	8		V
I_C	Collector Current	8		A
I_{CM}	Collector Peak Current (t_p < 10ms)	15		A
I_B	Base Current	2		A
I_{BM}	Base Peak Current (t_p < 10ms)	4		A
P_{tot}	Total Dissipation at T_c < 25°C	60		W
T_{stg}	Storage Temperature	– 65 to + 150		°C
T_j	Max. Operating Junction Temperature	150		°C

THERMAL DATA

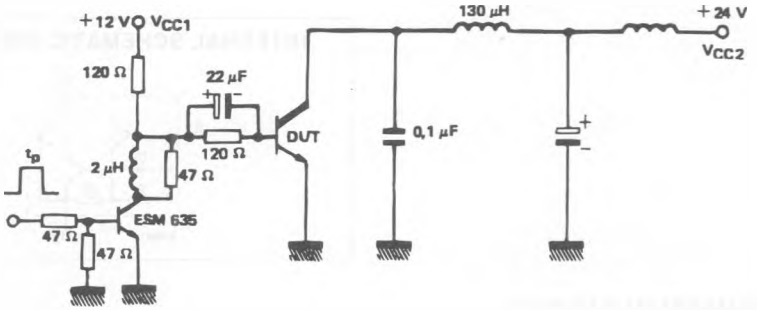
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	2.08	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cutoff Current	$V_{CE} = V_{CEX}$ $V_{BE} = -6V$			100	µA
I_{EBO}	Emitter Cutoff Current (I_C =0)	$V_{EB} = -8V$			10	mA
$V_{CEO(sus)}$*	Collector Emitter Sustaining Voltage	I_C = 3A L = 15mH for **BU184** for **BU189**	 200 150			 V V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 5A I_B = 50mA			1.5	V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 5A I_B = 50mA			2.2	V
V_F*	Diode Forward Voltage	I_F = 4A		1.8	2.3	V
t_s t_f	RESISTIVE LOAD Storage Time Fall Time	See Test Circuit		0.44 0.3	 0.5	 µs µs

* Pulse test t_p < 300 µs δ < 2 %.

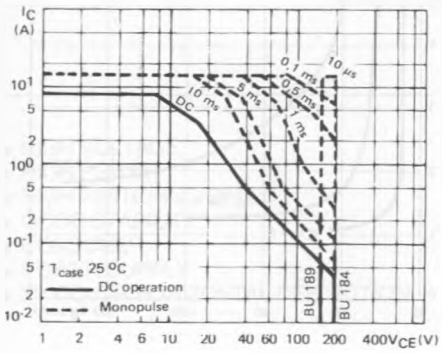
TEST CIRCUIT



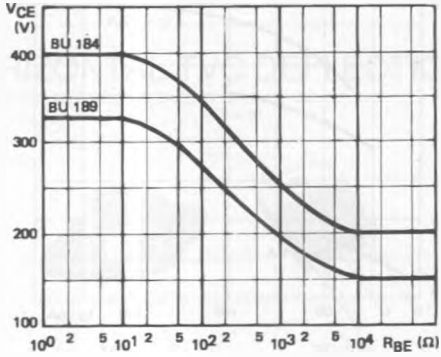
Adjust V_{CC1} for I_{Bend} = 50 mA
Adjust V_{CC2} for I_{Cend} = 5 A

Generator
- f = 15 625 Hz (T = 64 µs)
- t_p = 20 µs
- Amplitude 10 Volts

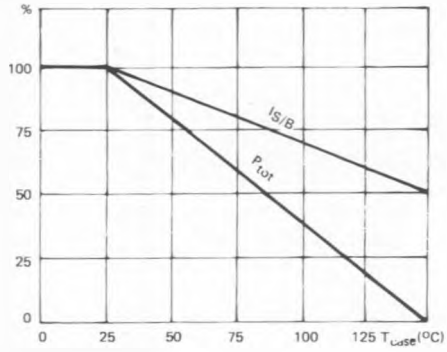
DC and Pulse Area.



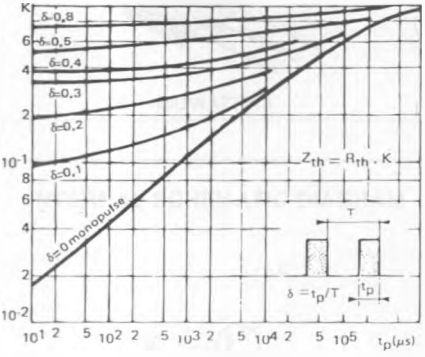
Collector-emitter Voltage vs Base-emitter Resistance.



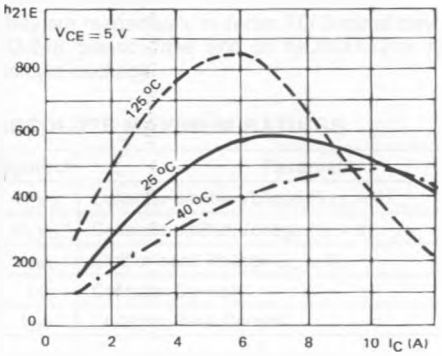
Power and IS/B Derating vs Case Temperature.



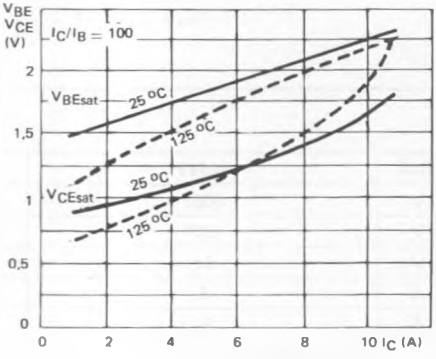
Transient Thermal Response.



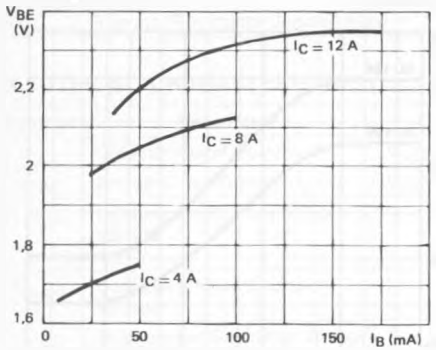
DC Current Gain.



Saturation Voltage.



Base Characteristics.



Collector Saturation Region.