SGS-THOMSON MICROELECTRONICS

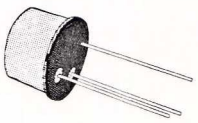
BF657
BF658-BF659

MEDIUM POWER VIDEO AMPLIFIERS

DESCRIPTION

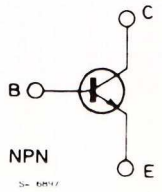
The BF657, BF658 and BF659 are silicon planar epitaxial NPN transistors in Jedec TO-39 metal case.

They are particularly designed for application with precision "IN-LINE" large screen CRT (thermal re-sis-tance ≤ 20 ° C/W).



TO-39

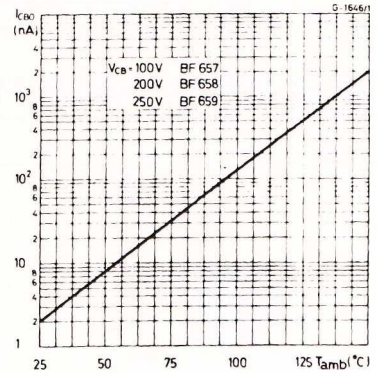
INTERNAL SCHEMATIC DIAGRAM



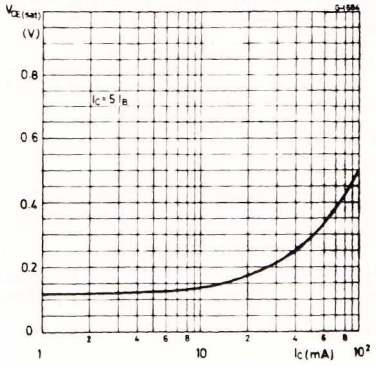
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BF657	BF658	BF659	
V_{CBO}	Collector-base Voltage (I_E = 0)	160	250	300	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	160	250	300	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	5			V
I_C	Collector Current	100			mA
I_{CM}	Collector Peak Current	200			mA
P_{tot}	Total Power Dissipation at T_{case} ≤ 60 °C at T_{case} ≤ 140 °C	7 3			W W
T_{stg}	Storage Temperature	– 55 to 200			°C
T_j	Junction Temperature	200			°C

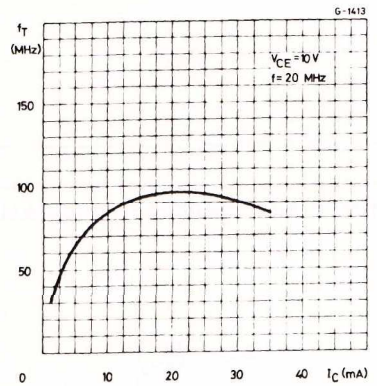
Collector Cutoff Current.



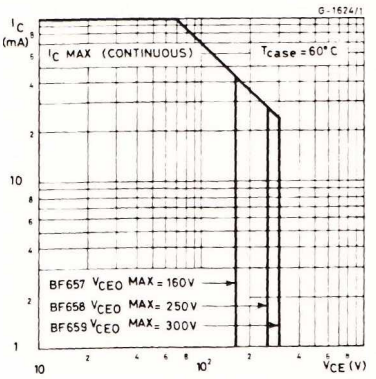
Collector-base and Reverse Capacitances.



Transition Frequency.



Safe Operating Areas.



THERMAL DATA

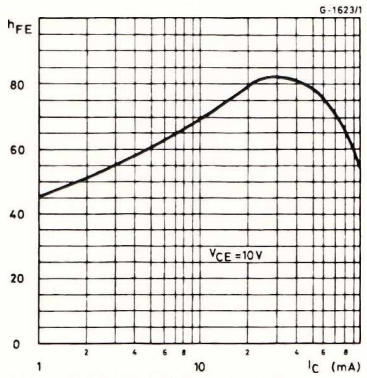
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	20	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

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)	for **BF657** for **BF658** for **BF659**	V_{CB} = 100 V V_{CB} = 200 V V_{CB} = 250 V			50 50 50	nA nA nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage (I_E = 0)	I_C = 100 µA	for **BF657** for **BF658** for **BF659**	160 250 300			V V V
$V_{(BR)\ CEO}$*	Collector-emittter Breakdown Voltage (I_B = 0)	I_C = 10 mA	for **BF657** for **BF658** for **BF659**	160 250 300			V V V
$V_{(BR)\ EBO}$	Emitter-base Breakdown Voltage (I_C = 0)	I_E = 100 µA		5			V
$V_{CE\ (sat)}$*	Collector-emitter Saturation Voltage	I_C = 30 mA	I_B = 6 mA			1	V
h_{FE}*	DC Current Gain	I_C = 30 mA	V_{CE} = 10 V	25			
f_T	Transition Frequency	I_C = 15 mA	V_{CE} = 10 V		90		MHz
C_{re}	Reverse Capacitance	I_C = 0 f = 1 MHz	V_{CE} = 30 V		3		pF

* Pulsed : pulse duration = 300 µs, duty cycle = 1 %.

DC Current Gain.



Collector-emitter Saturation Voltage.