

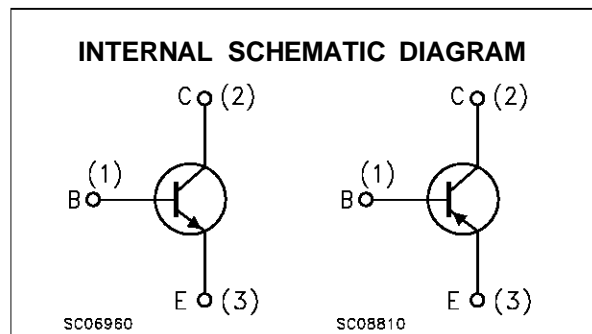
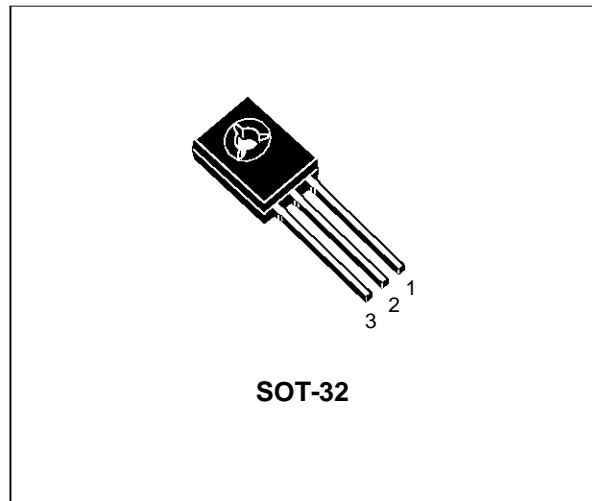
COMPLEMENTARY SILICON POWER TRANSISTORS

■ SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The BD235 and BD237 are silicon epitaxial-base NPN power transistors in Jedec SOT-32 plastic package intended for use in medium power linear and switching applications.

The complementary PNP types are BD236 and BD238 respectively.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit	
		NPN	BD235		BD237
		PNP	BD236		BD238
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		60	100	V
V_{CER}	Collector-Base Voltage ($R_{BE} = 1K\Omega$)		60	100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		60	80	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)		5		V
I_C	Collector Current		2		A
I_{CM}	Collector Peak Current		6		A
P_{tot}	Total Dissipation at $T_c = 25^\circ C$		25		W
T_{stg}	Storage Temperature		-65 to 150		$^\circ C$
T_j	Max. Operating Junction Temperature		150		$^\circ C$

For PNP types voltage and current values are negative.

BD235/BD236/BD237/BD238

THERMAL DATA

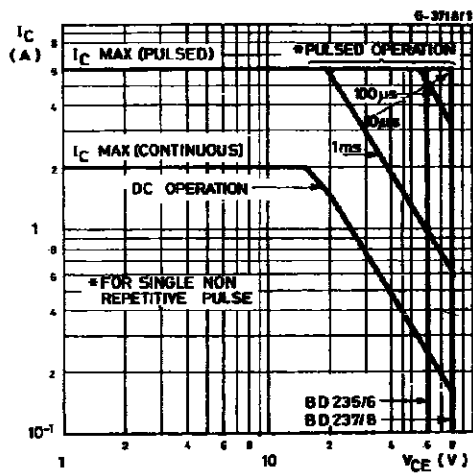
R _{thj-case}	Thermal Resistance Junction-case	Max	5	°C/W
-----------------------	----------------------------------	-----	---	------

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

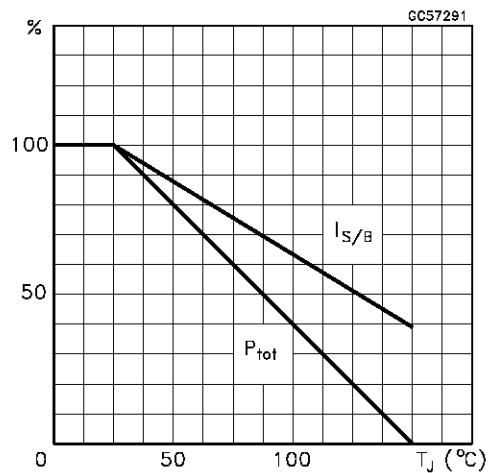
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CE} = rated V _{CEO} V _{CE} = rated V _{CEO} T _C = 150 °C			0.1 2	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage	I _C = 100 mA for BD235/BD236 for BD237/BD238	60 80			V V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 1 A I _B = 0.1 A			0.6	V
V _{BE*}	Base-Emitter Voltage	I _C = 1 A V _{CE} = 2 V			1.3	V
h _{FE*}	DC Current Gain	I _C = 150 mA V _{CE} = 2 V I _C = 1 A V _{CE} = 2 V	40 25			
f _T	Transition frequency	I _C = 250 mA V _{CE} = 10 V	3			MHz
h _{FE1} /h _{FE2} *	Matched Pairs	I _C = 150 mA V _{CE} = 2 V		1.6		

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

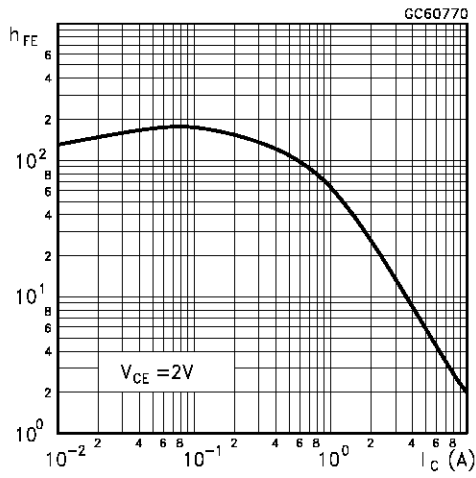
Safe Operating Area



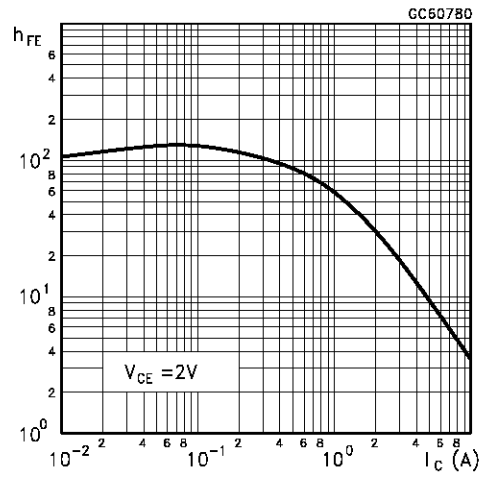
Derating Curves



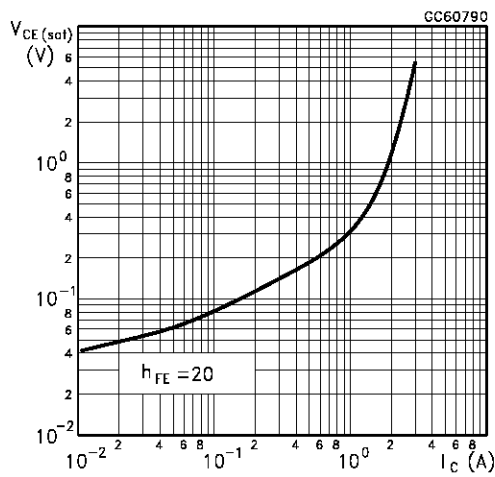
DC Current Gain (NPN type)



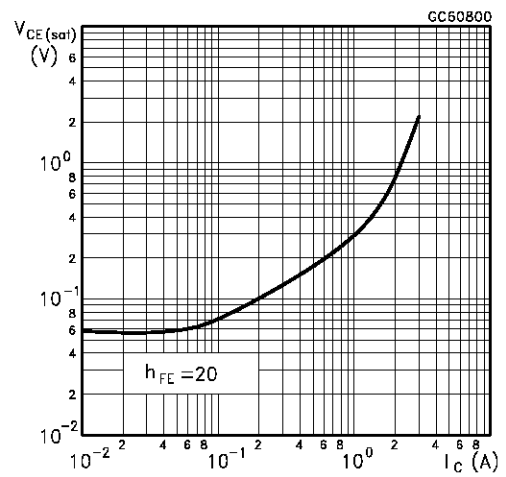
DC Current Gain (PNP type)



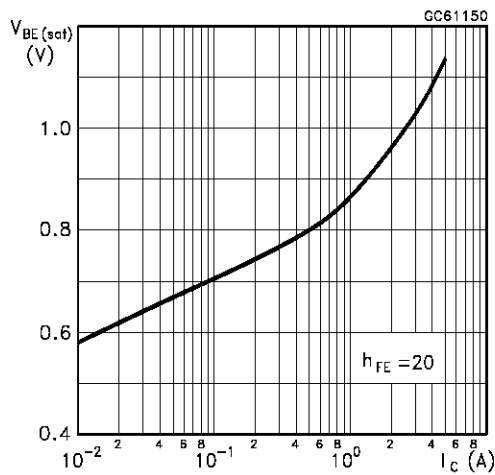
Collector-Emitter Saturation Voltage (NPN type)



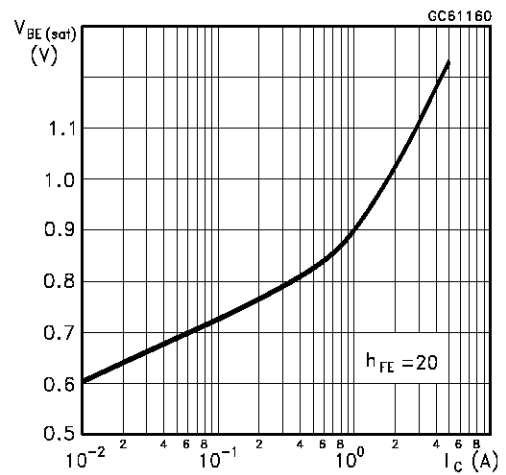
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)

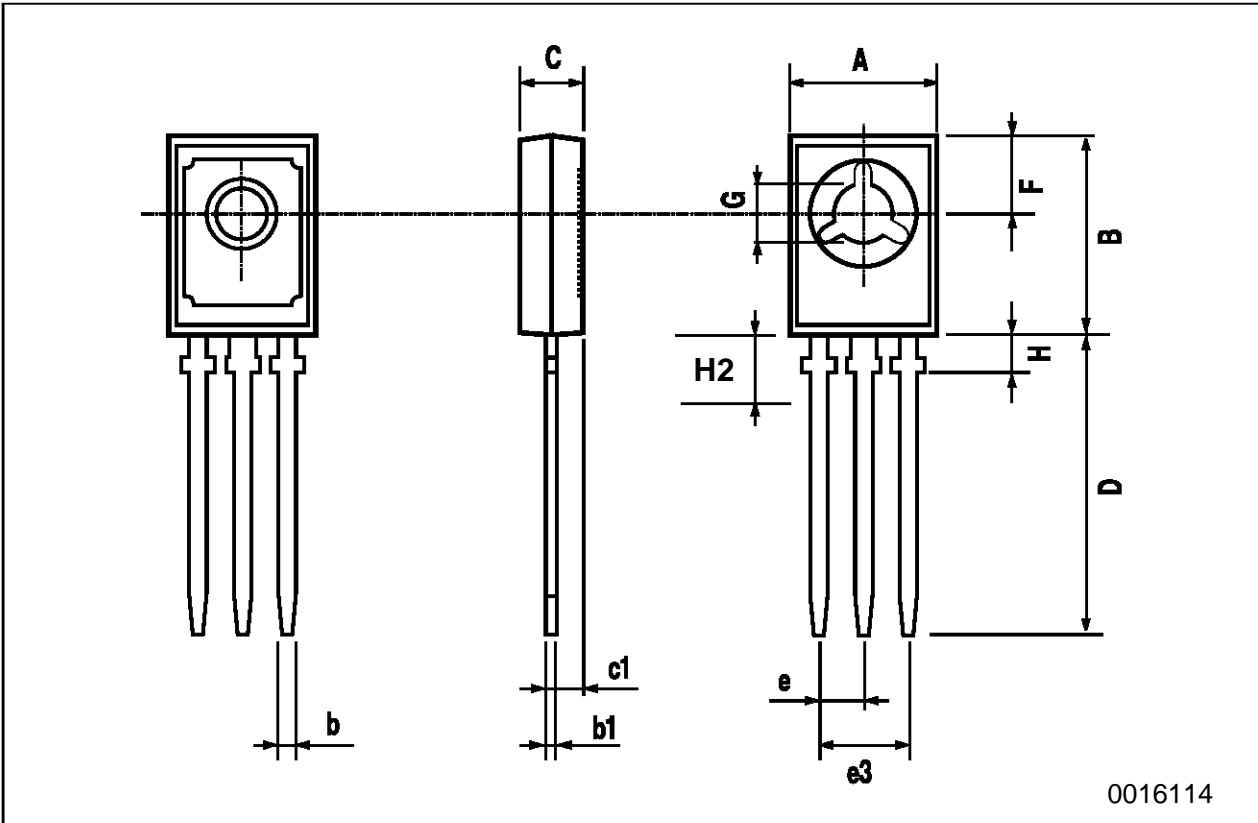


Collector-Base Capacitance (PNP type)



SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.445
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.040		0.106
c1	1.0		1.3	0.039		0.050
D	15.4		16.0	0.606		0.629
e		2.2			0.087	
e3	4.15		4.65	0.163		0.183
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084	



0016114

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1997 SGS-THOMSON Microelectronics - Printed in Italy - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES
Australia - Brazil - Canada - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A
...