



BD235 BD236 BD237 BD238

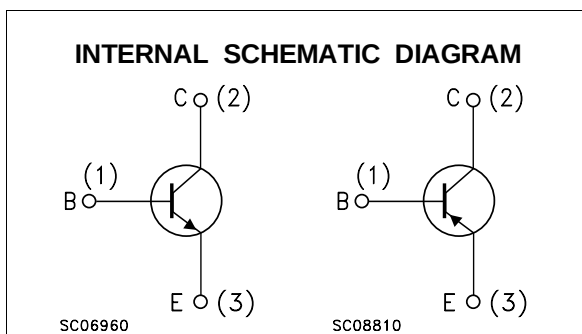
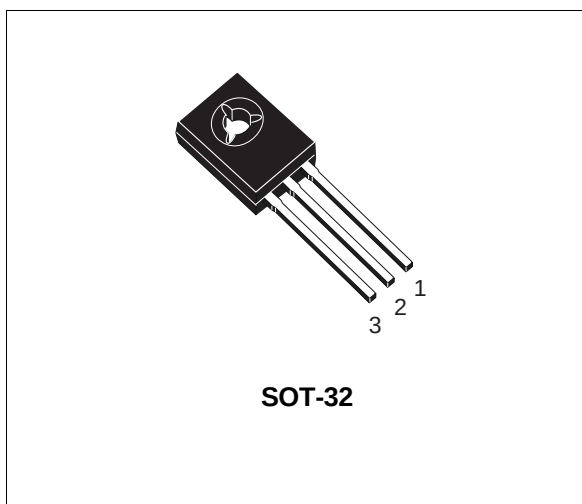
COMPLEMENTARY SILICON POWER TRANSISTORS

- STMicroelectronics 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	PNP	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	BD235	BD237	V
V_{CER}	Collector-Base Voltage ($R_{BE} = 1K\Omega$)	BD235	BD237	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	BD235	BD237	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	BD236	BD238	V
I_C	Collector Current	BD235	BD237	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	BD235	BD237	A
P_{tot}	Total Dissipation at $T_c = 25$ °C	BD235	BD237	W
T_{stg}	Storage Temperature	BD235	BD237	°C
T_j	Max. Operating Junction Temperature	BD235	BD237	°C

For PNP types voltage and current values are negative.

BD235 BD236 BD237 BD238

THERMAL DATA

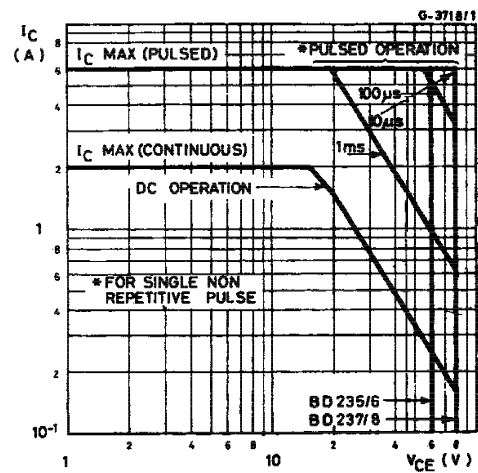
R _{thj-case}	Thermal Resistance Junction-case	Max	5	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

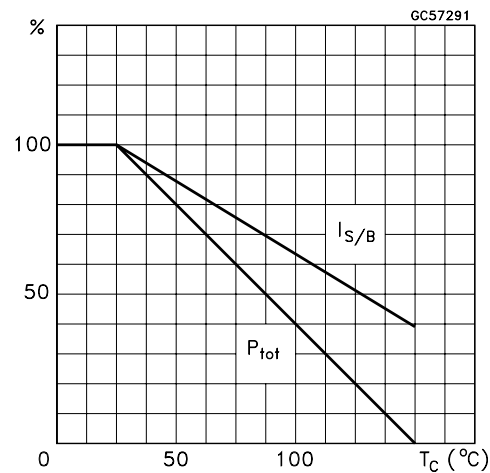
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CE} = rated V _{CEO} V _{CE} = rated V _{CEO} T _C = 150 °C			0.1 2	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B = 0)	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 %

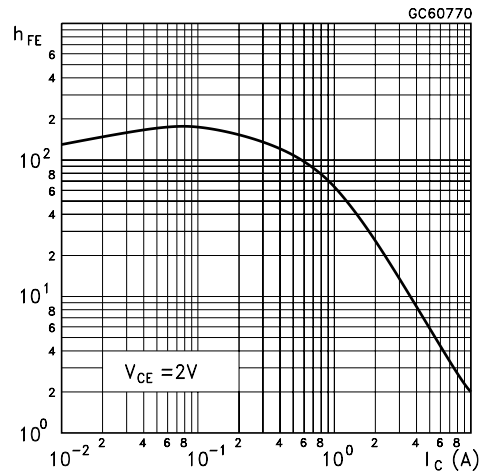
Safe Operating Area



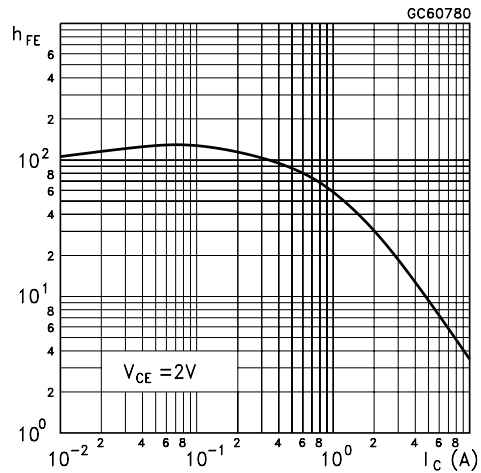
Derating Curve



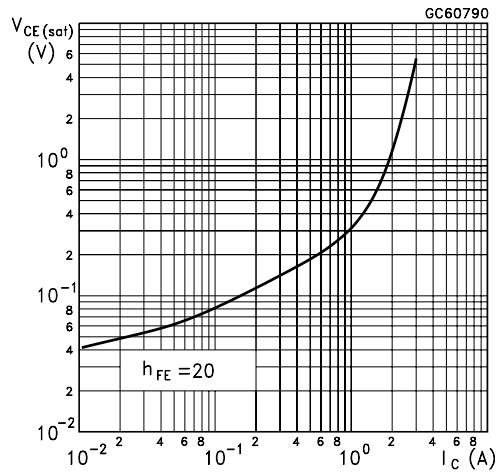
DC Current Gain (NPN type)



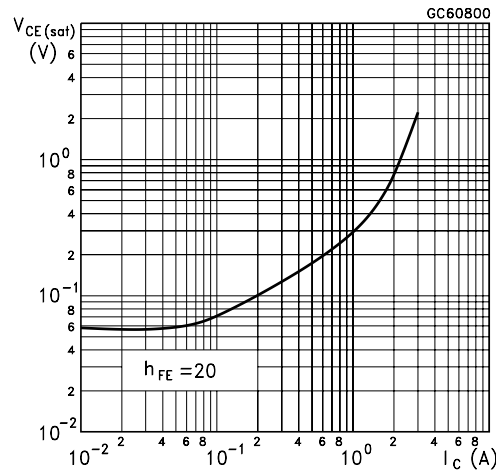
DC Current Gain (PNP type)



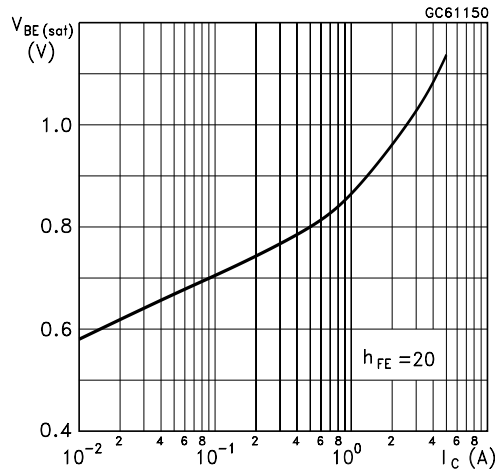
Collector-Emitter Saturation Voltage (NPN type)



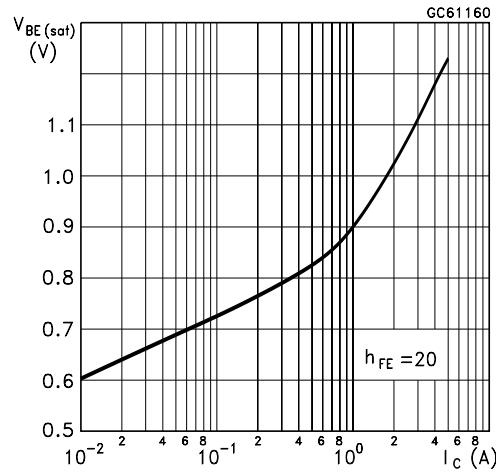
Collector-Emitter Saturation Voltage (PNP type)



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		0.425
b	0.7		0.9	0.028		0.035
b1	0.40		0.65	0.015		0.025
C	2.4		2.7	0.094		0.106
c1	1.0		1.3	0.039		0.051
D	15.4		16.0	0.606		0.630
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084	
I		1.27			0.05	
O		0.3			0.011	
V		10°			10°	

