



BD235 BD236 BD237 BD238

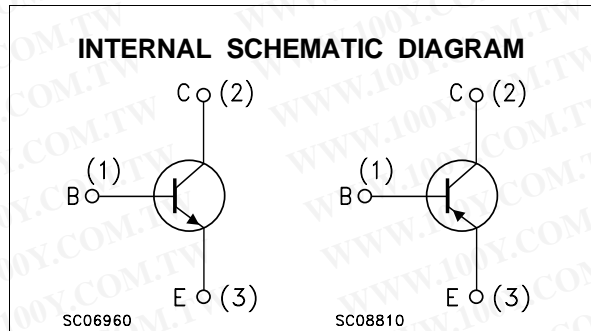
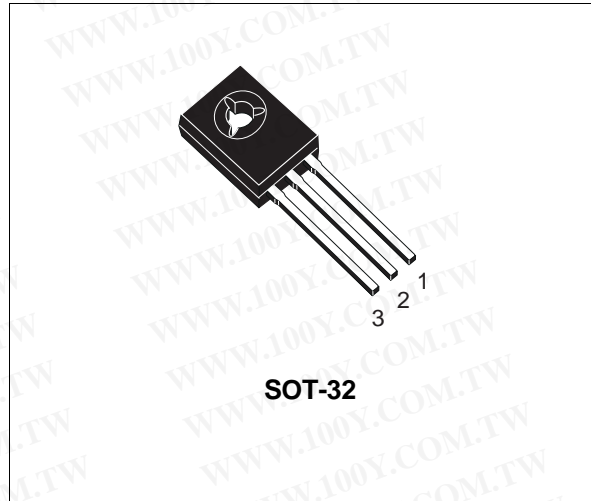
COMPLEMENTARY SILICON POWER TRANSISTORS

- 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	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 ($t_p < 5$ ms)	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

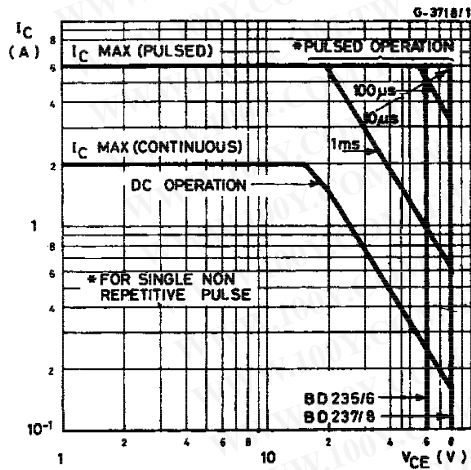
R _{thj-case}	Thermal Resistance Junction-case	Max	5	°C/W
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

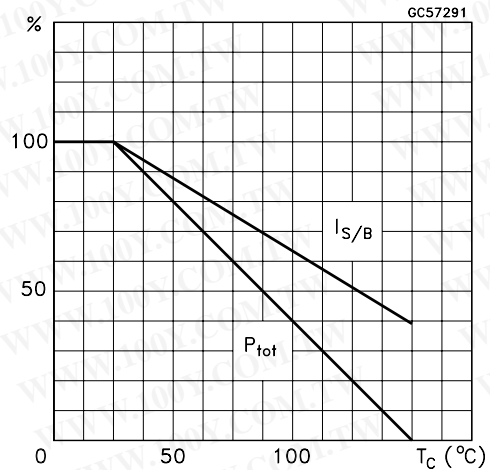
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CE} = rated V _{CEO} V _{CE} = rated V _{CEO} T _C = 150 °C			0.1 2	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B =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

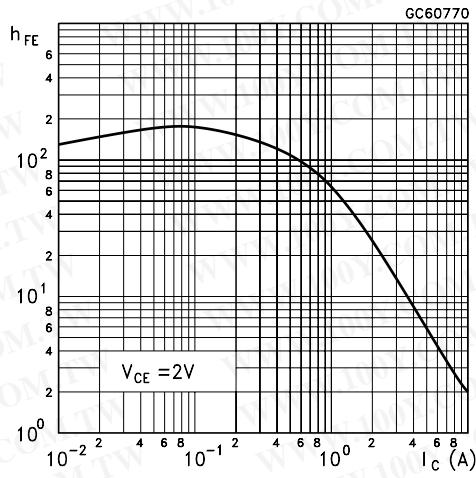
Safe Operating Area



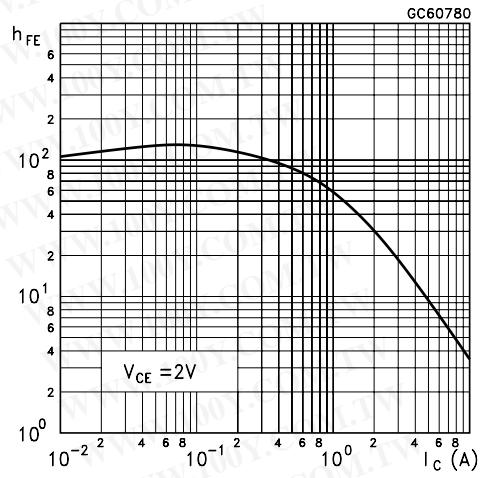
Derating Curve



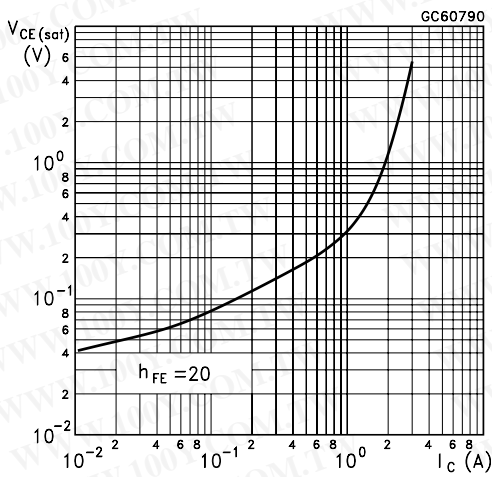
DC Current Gain (NPN type)



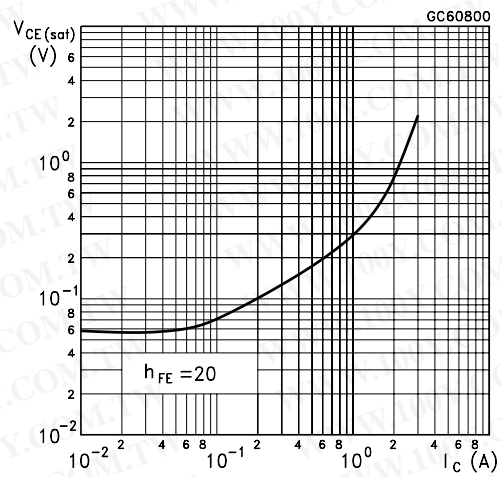
DC Current Gain (PNP type)



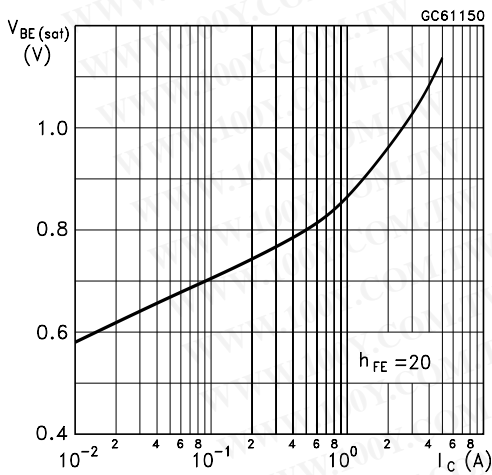
Collector-Emitter Saturation Voltage (NPN type)



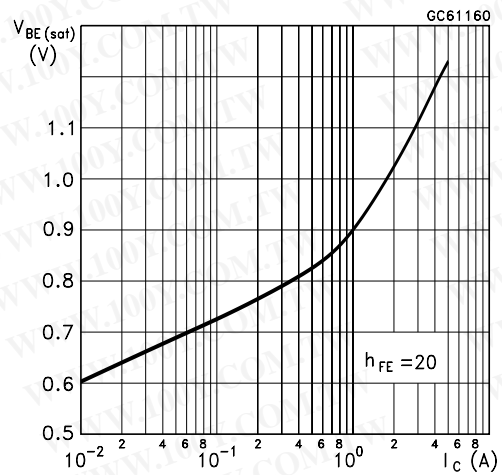
Collector-Emitter Saturation Voltage (PNP type)



Base-Emitter Saturation Voltage (NPN type)



Collector-Base Capacitance (PNP type)



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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°	

