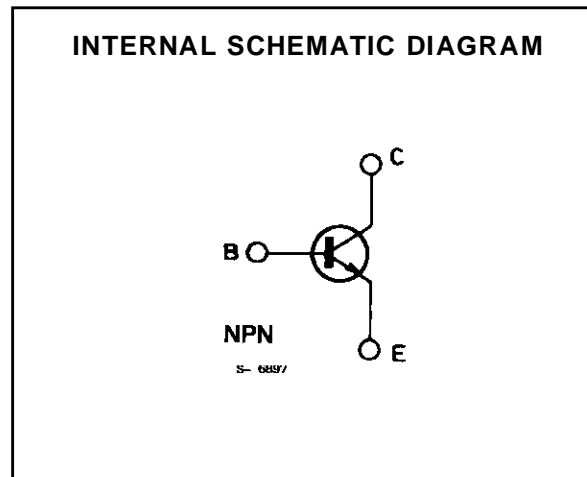
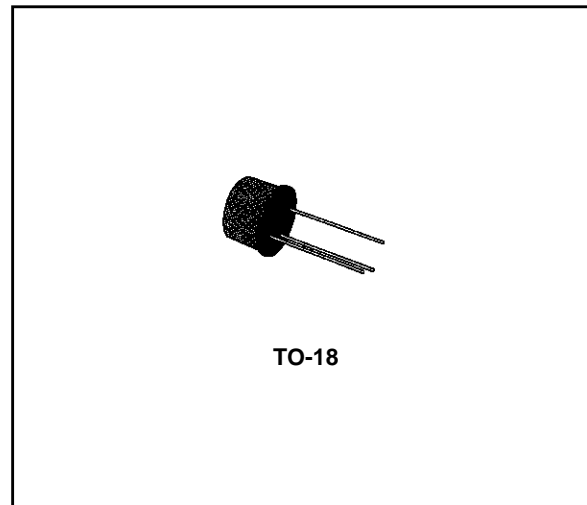


HIGH-SPEED SATURATED SWITCH

DESCRIPTION

The 2N2845 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case. It is intended for high speed switching applications at collector currents up to 500 mA.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	60	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	30	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	500	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$	0.36	W
	at $T_{case} \leq 25\text{ }^\circ\text{C}$	1.2	W
	at $T_{case} \leq 100\text{ }^\circ\text{C}$	0.68	W
T_{stg}, T_j	Storage and Junction Temperature	- 55 to 200	$^\circ\text{C}$

THERMAL DATA

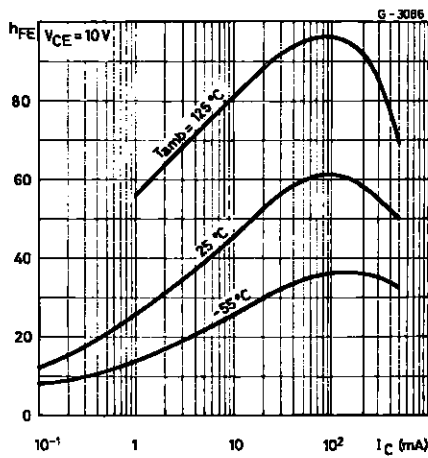
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	146	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	486	°C/W

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ °C}$ unless otherwise specified)

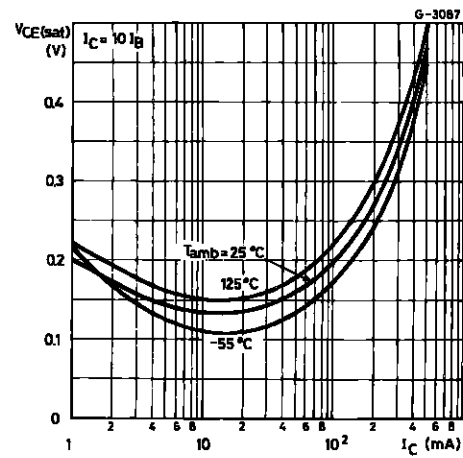
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}$ $T_{amb} = 125\text{ °C}$			200 200	nA μA
$V_{(BR)\ CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = 0.1\text{ mA}$	60			V
$V_{(BR)\ CEO}^*$	Collector-emitter Breakdown Voltage ($I_B = 0$)	$I_C = 30\text{ mA}$	30			V
$V_{(BR)\ EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = 0.1\text{ mA}$	5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 50\text{ mA}$ $I_B = 5\text{ mA}$ $I_C = 150\text{ mA}$ $I_B = 15\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$		0.16 0.22 0.48	0.4 1	V V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 50\text{ mA}$ $I_B = 5\text{ mA}$ $I_C = 150\text{ mA}$ $I_B = 15\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$		0.78 0.85 1.12	1.2 1.6	V V V
h_{FE}^*	DC Current Gain	$I_C = 50\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}$ $V_{CE} = 1\text{ V}$	30 20 10	60 60 50 30	120	
f_T	Transition Frequency	$I_C = 50\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 100\text{ MHz}$	250	350		MHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$		6	8	pF
t_{on}	Turn-on Time	$I_C = 150\text{ mA}$ $V_{CC} = 10\text{ V}$ $I_{B1} = 15\text{ mA}$		18	40	ns
t_{off}	Turn-off Time	$I_C = 150\text{ mA}$ $V_{CC} = 10\text{ V}$ $I_{B1} = -I_{B2} = 15\text{ mA}$		25	40	ns

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

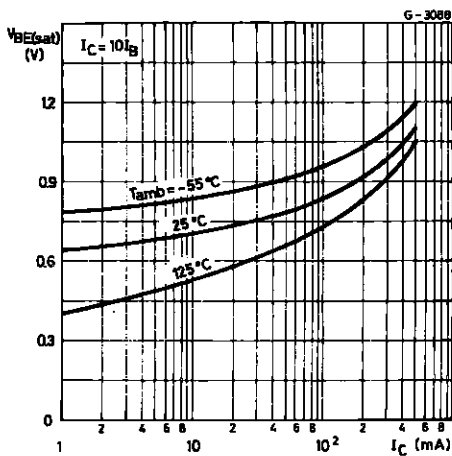
DC Current Gain.



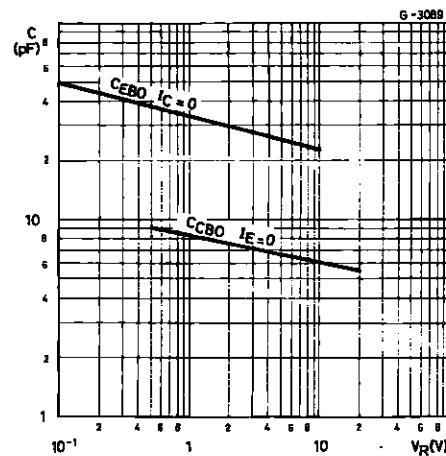
Collector-emitter Saturation Voltage.



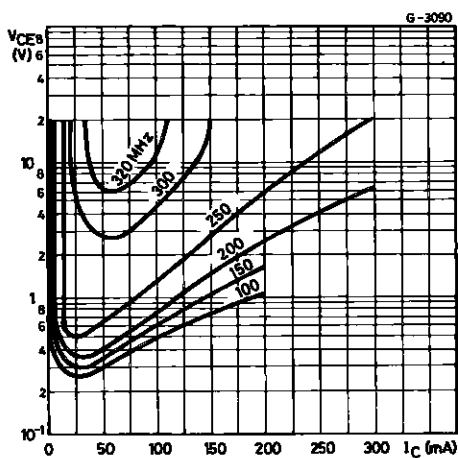
Base-emitter Saturation Voltage.



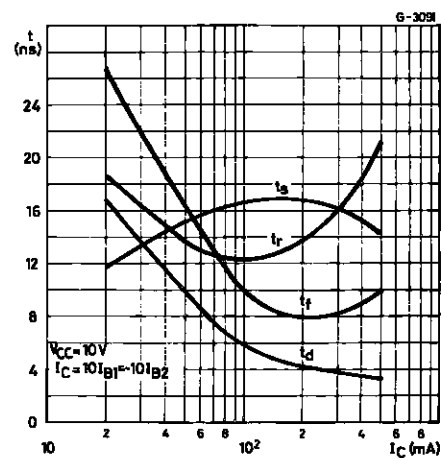
Emitter-base and Collector-base Capacitances.



Contours of Constant Transition Frequency.

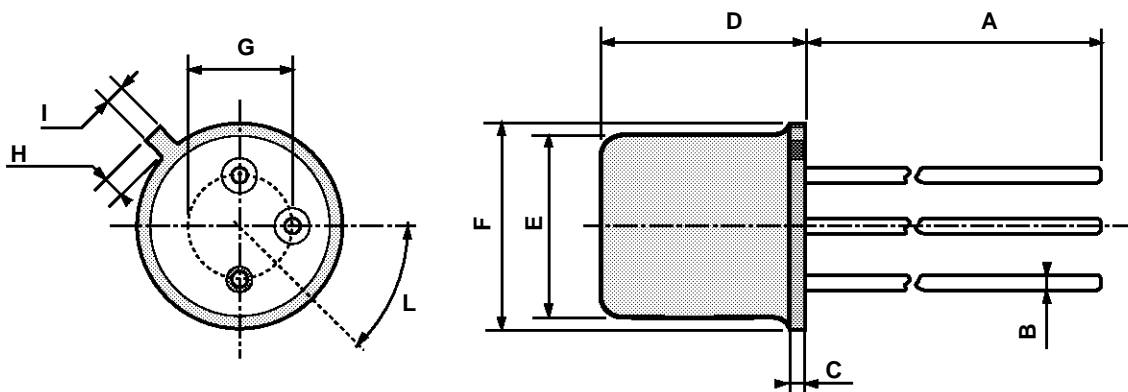


Switching Characteristics.



TO-18 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		12.7			0.500	
B			0.49			0.019
D			5.3			0.208
E			4.9			0.193
F			5.8			0.228
G	2.54			0.100		
H			1.2			0.047
I			1.16			0.045
L	45°			45°		



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