

SIEMENS AKTIENGESELLSCHAFT

BD 644
BD 646
BD 648
BD 650

Static characteristics ($T_{amb} = 25^{\circ}\text{C}$)

		BD 644	BD 646	BD 648	BD 650	
Collector cutoff current ($V_{CB} = V_{CBmax}$)	$-I_{CBO}$	<0.2	<0.2	<0.2	<0.2	mA
($V_{CB} = V_{CBmax}$; $T_{amb} = 100^{\circ}\text{C}$)	$-I_{CBO}$	<2	<2	<2	<2	mA
Collector cutoff current ($V_{CE} = 0.5 V_{CEmax}$)	$-I_{CEO}$	<0.5	<0.5	<0.5	<0.5	mA
Emitter cutoff current ($V_{EB} = 5 \text{ V}$)	$-I_{EBO}$	<5	<5	<5	<5	mA
Collector-emitter breakdown voltage ($I_C = 100 \text{ mA}$) ¹⁾	$-V_{(BR)CEO}$	>45	>60	>80	>100	V
Collector-base breakdown voltage ($I_E = 5 \text{ mA}$)	$-V_{(BR)CBO}$	>45	>60	>80	>100	V
Emitter-base breakdown voltage ($I_E = 2 \text{ mA}$)	$-V_{(BR)EBO}$	>5	>5	>5	>5	V
DC current gain ($-I_C = 0.5 \text{ A}$; $-V_{CE} = 3 \text{ V}$)	h_{FE}	1500	1500	1500	1500	-
($-I_C = 3 \text{ A}$; $-V_{CE} = 3 \text{ V}$)	h_{FE}	>750	>750	>750	>750	-
($-I_C = 6 \text{ A}$; $-V_{CE} = 3 \text{ V}$)	h_{FE}	750	750	750	750	-
Base-emitter forward voltage ($-I_C = 3 \text{ A}$; $-V_{CE} = 3 \text{ V}$)	$-V_{BE}$	<2.5	<2.5	<2.5	<2.5	V
Collector-emitter saturation voltage ($-I_C = 3 \text{ A}$; $-I_B = 12 \text{ mA}$)	$-V_{CEsat}$	<2	<2	<2	<2	V
Forward voltage of the protective diode at $I_F = 3 \text{ A}$	V_F	1.8	1.8	1.8	1.8	V

Dynamic characteristics ($T_{amb} = 25^{\circ}\text{C}$)

Transition frequency ($-I_C = 3 \text{ A}$; $-V_{CE} = 3 \text{ V}$; $f = 1 \text{ MHz}$)	f_T	7 (>1)	7 (>1)	7 (>1)	7 (>1)	MHz
Cutoff frequency in common emitter configuration ($-I_C = 3 \text{ A}$; $-V_{CE} = 3 \text{ V}$)	f_{hfe}	60	60	60	60	kHz

1) $t = 200 \mu\text{s}$, duty cycle 1%

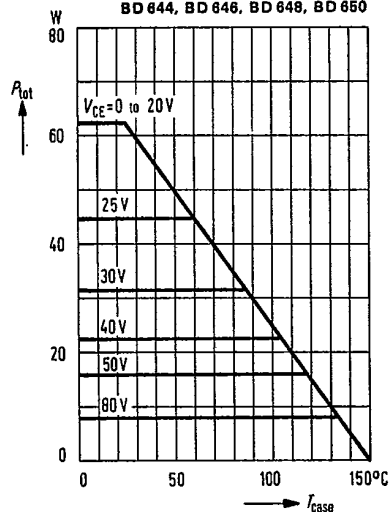
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Total perm. power dissipation
versus temperature

$P_{\text{tot}} = f(T_{\text{case}})$; $V_{\text{CE}} = \text{parameter}$

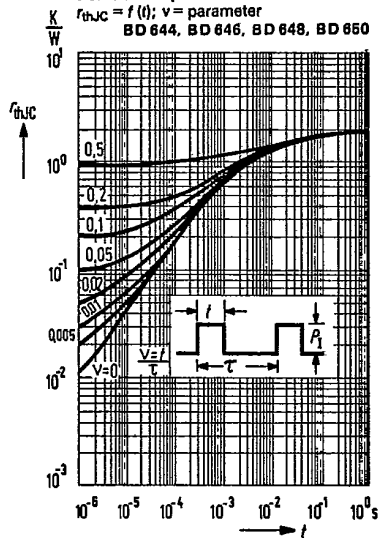
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Permissible pulse load

$r_{\text{thJC}} = f(t)$; $v = \text{parameter}$

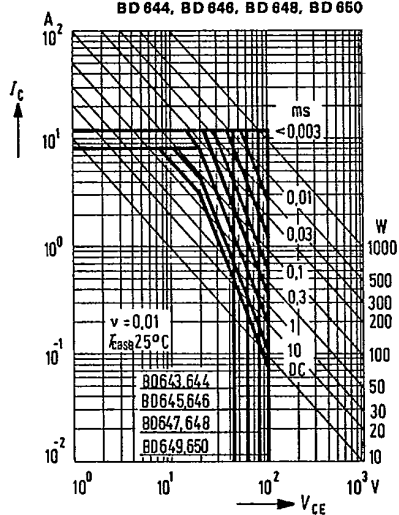
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Permissible operating range

$I_C = f(V_{\text{CE}})$; $T_{\text{case}} = 25^\circ\text{C}$, $v = 0.01$

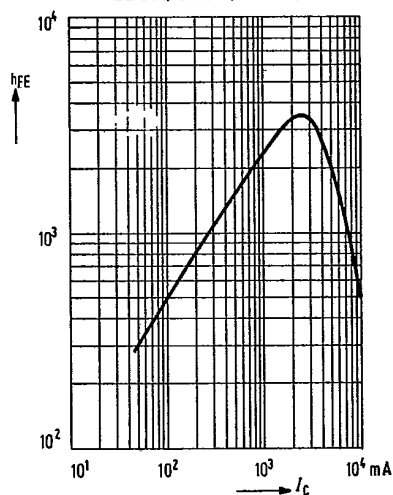
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DC current gain $h_{\text{FE}} = f(I_C)$

$V_{\text{CE}} = 3 \text{ V}$; $T_{\text{case}} = 25^\circ\text{C}$

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