

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS			MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$ Collector-emitter breakdown voltage	$I_C = 30 \text{ mA}$	$I_B = 0$	(see Note 5)	BD743	45		V
				BD743A	60		
				BD743B	80		
				BD743C	100		
I_{CBO} Collector cut-off current	$V_{CE} = 50 \text{ V}$	$V_{BE} = 0$	$T_C = 125^\circ\text{C}$	BD743		0.1	mA
				BD743A		0.1	
				BD743B		0.1	
				BD743C		0.1	
				BD743		5	
				BD743A		5	
				BD743B		5	
I_{CEO} Collector cut-off current	$V_{CE} = 30 \text{ V}$	$I_B = 0$	$T_C = 125^\circ\text{C}$	BD743/743A		0.1	mA
				BD743B/743C		0.1	
I_{EBO} Emitter cut-off current	$V_{EB} = 5 \text{ V}$	$I_C = 0$				0.5	mA
h_{FE} Forward current transfer ratio	$V_{CE} = 4 \text{ V}$	$I_C = 1 \text{ A}$	(see Notes 5 and 6)		40		
				$I_C = 5 \text{ A}$	20	150	
				$I_C = 15 \text{ A}$	5		
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 0.5 \text{ A}$	$I_C = 5 \text{ A}$	(see Notes 5 and 6)			1	V
				$I_C = 15 \text{ A}$		3	
V_{BE} Base-emitter voltage	$V_{CE} = 4 \text{ V}$	$I_C = 5 \text{ A}$	(see Notes 5 and 6)			1	V
				$I_C = 15 \text{ A}$		3	
h_{fe} Small signal forward current transfer ratio	$V_{CE} = 10 \text{ V}$	$I_C = 1 \text{ A}$	$f = 1 \text{ kHz}$		25		
$ h_{fe} $ Small signal forward current transfer ratio	$V_{CE} = 10 \text{ V}$	$I_C = 1 \text{ A}$	$f = 1 \text{ MHz}$		5		

NOTES: 5. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

6. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1.4	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$ Junction to free air thermal resistance			62.5	$^\circ\text{C}/\text{W}$

resistive-load-switching characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS †			MIN	TYP	MAX	UNIT			
t_d Delay time	$I_C = 5 \text{ A}$	$I_{B(on)} = 0.5 \text{ A}$	$I_{B(off)} = -0.5 \text{ A}$		20		ns			
t_r Rise time					350		ns			
t_s Storage time				$V_{BE(off)} = -4.2 \text{ V}$	$R_L = 6 \Omega$	$t_p = 20 \mu\text{s}$, $dc \leq 2\%$		500		ns
t_f Fall time								400		ns

† Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

TYPICAL CHARACTERISTICS

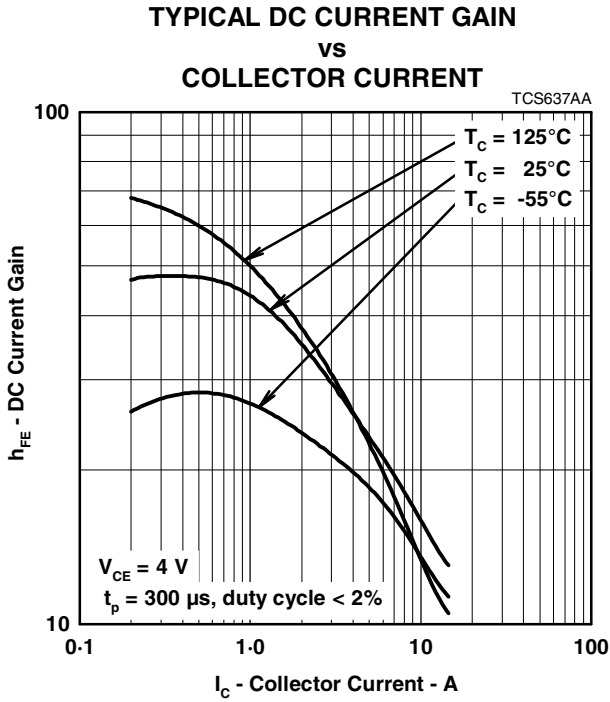


Figure 1.

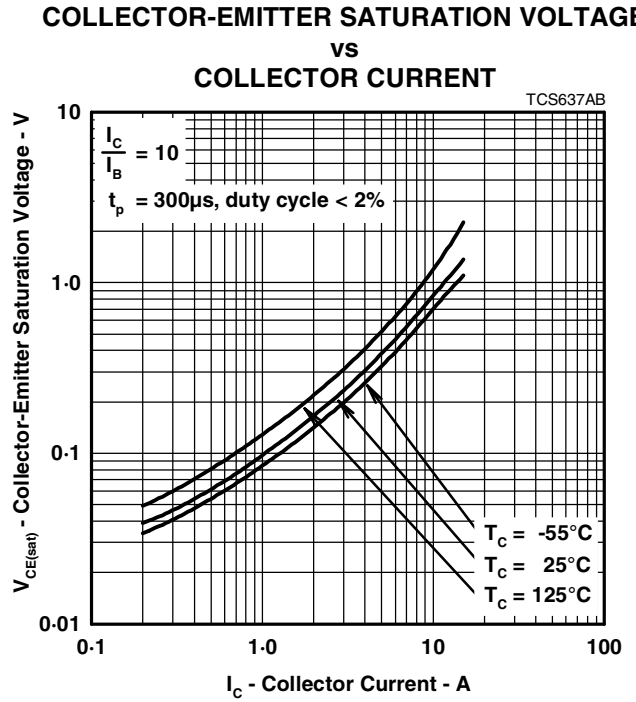


Figure 2.

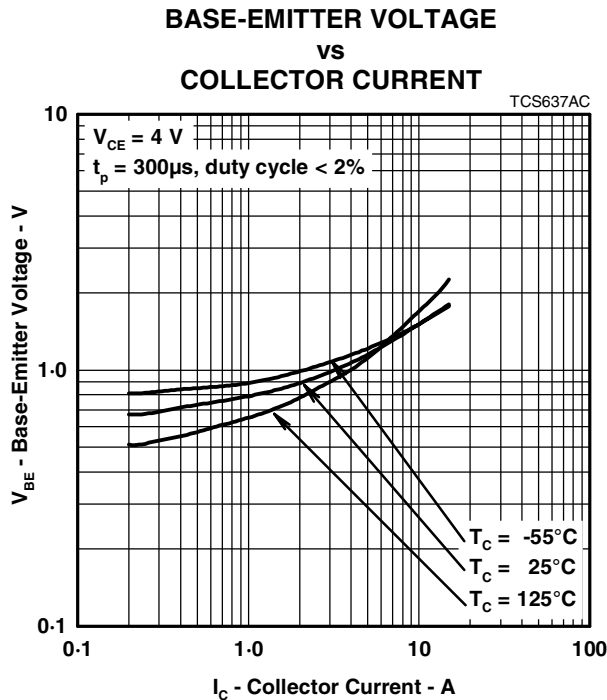


Figure 3.

PRODUCT INFORMATION

MAXIMUM SAFE OPERATING REGIONS

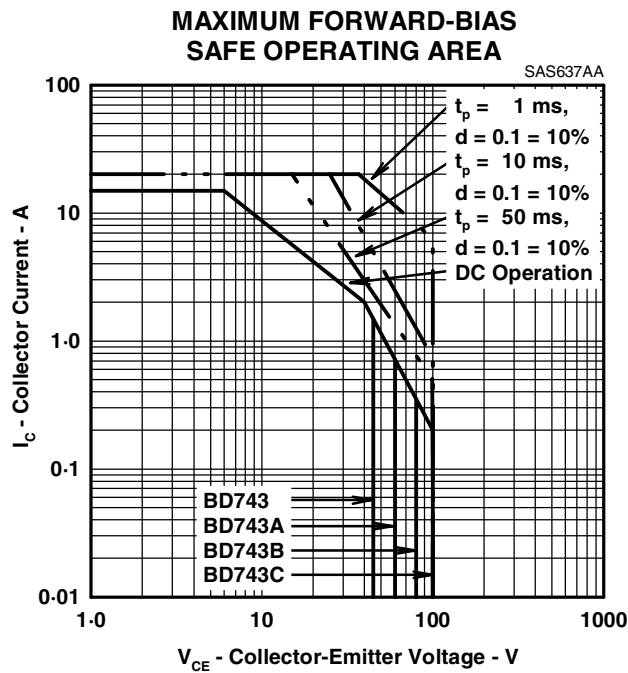


Figure 4.

THERMAL INFORMATION

**MAXIMUM POWER DISSIPATION
VS
CASE TEMPERATURE**

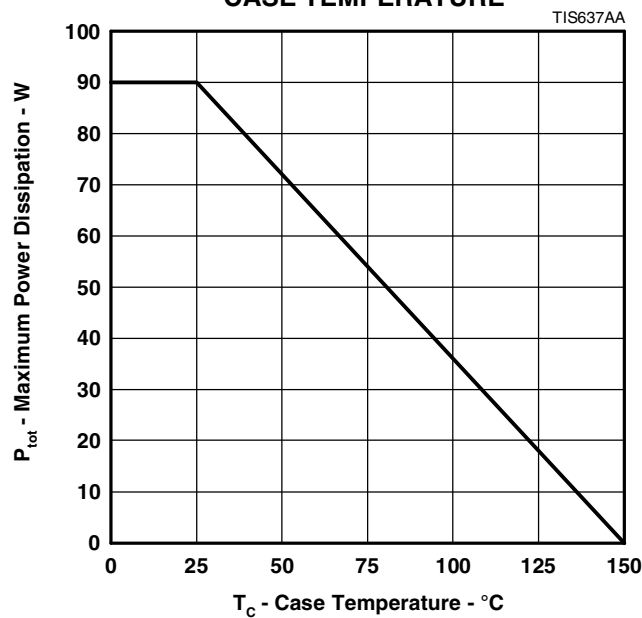


Figure 5.

PRODUCT INFORMATION

AUGUST 1978 - REVISED SEPTEMBER 2002
Specifications are subject to change without notice.

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