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 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 V	V_{BE} = 0		BD743			0.1	mA
		V_{CE} = 70 V	V_{BE} = 0		BD743A			0.1	
		V_{CE} = 90 V	V_{BE} = 0		BD743B			0.1	
		V_{CE} = 110 V	V_{BE} = 0		BD743C			0.1	
		V_{CE} = 50 V	V_{BE} = 0	T_C = 125°C	BD743			5	
		V_{CE} = 70 V	V_{BE} = 0	T_C = 125°C	BD743A			5	
		V_{CE} = 90 V	V_{BE} = 0	T_C = 125°C	BD743B			5	
		V_{CE} = 110 V	V_{BE} = 0	T_C = 125°C	BD743C			5	
I_{CEO}	Collector cut-off current	V_{CE} = 30 V	I_B = 0		BD743/743A			0.1	mA
		V_{CE} = 60 V	I_B = 0		BD743B/743C			0.1	
I_{EBO}	Emitter cut-off current	V_{EB} = 5 V	I_C = 0					0.5	mA
h_{FE}	Forward current transfer ratio	V_{CE} = 4 V	I_C = 1 A	(see Notes 5 and 6)		40			
		V_{CE} = 4 V	I_C = 5 A			20		150	
		V_{CE} = 4 V	I_C = 15 A			5			
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_B = 0.5 A	I_C = 5 A	(see Notes 5 and 6)				1	V
		I_B = 5 A	I_C = 15 A					3	
V_{BE}	Base-emitter voltage	V_{CE} = 4 V	I_C = 5 A	(see Notes 5 and 6)				1	V
		V_{CE} = 4 V	I_C = 15 A					3	
h_{fe}	Small signal forward current transfer ratio	V_{CE} = 10 V	I_C = 1 A	f = 1 kHz		25			
$\|h_{fe}\|$	Small signal forward current transfer ratio	V_{CE} = 10 V	I_C = 1 A	f = 1 MHz		5			

NOTES: 5. These parameters must be measured using pulse techniques, t_p = 300 µs, duty cycle ≤ 2%.
6. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

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thermal characteristics

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

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

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

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

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TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN vs COLLECTOR CURRENT

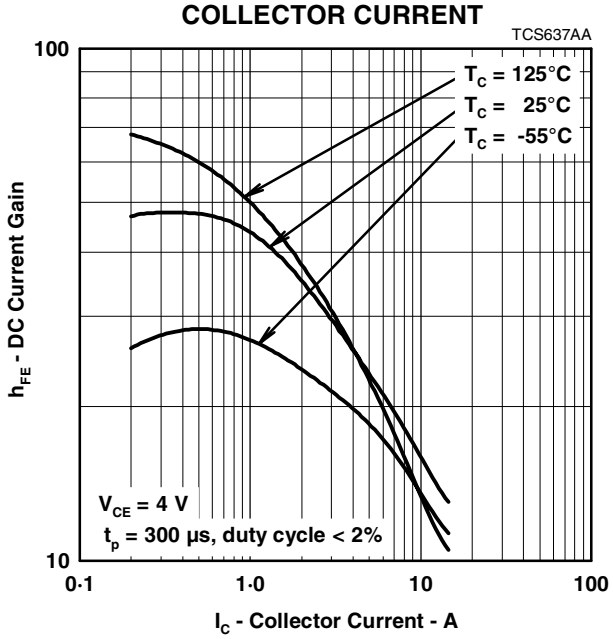

Figure 1.

COLLECTOR-EMITTER SATURATION VOLTAGE vs COLLECTOR CURRENT

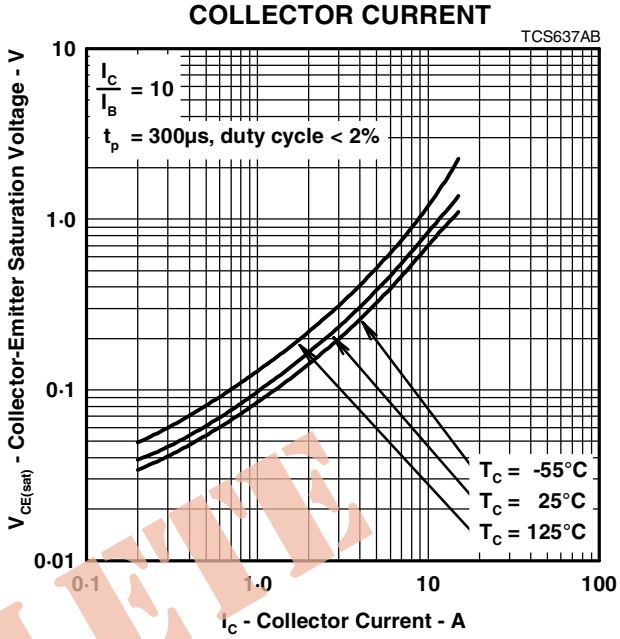

Figure 2.

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BASE-EMITTER VOLTAGE vs COLLECTOR CURRENT

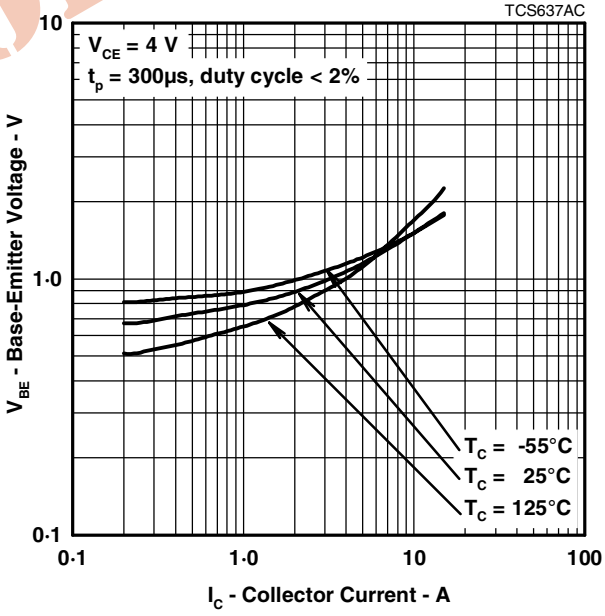

Figure 3.

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MAXIMUM SAFE OPERATING REGIONS

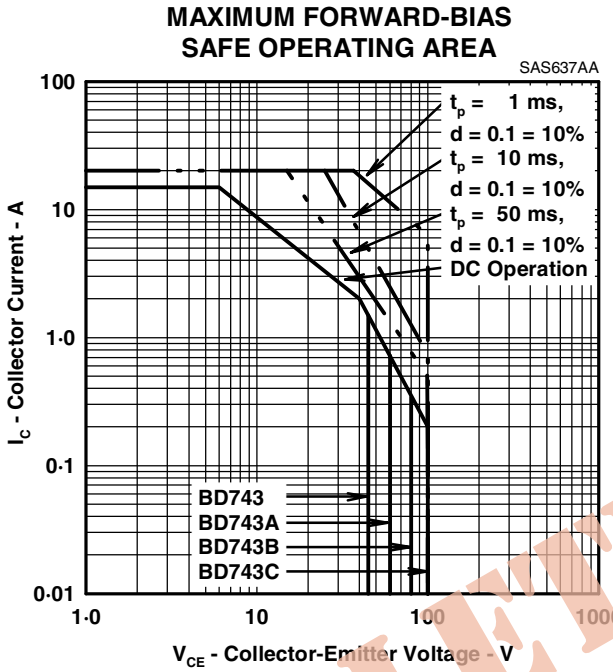

Figure 4.

THERMAL INFORMATION

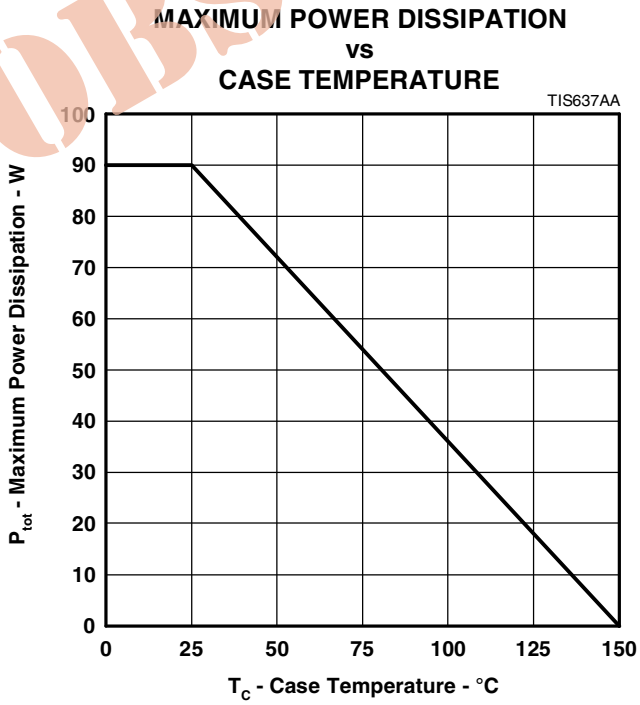

Figure 5.

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