

**2SC3784****Driver Applications****Applications**

- Suitable for use in switching of L load (motor drivers, printer hammer drivers, relay drivers).

Features

- High DC current gain.
- Wide ASO.
- On-chip Zener diode of $60\pm 10V$ between collector and base.
- Uniformity in collector-to-base breakdown voltage.
- Large inductive load handling capability.

Specifications**Absolute Maximum Ratings** at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		50*	V
Collector-to-Emitter Voltage	V_{CEO}		50*	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		1.2	A
Collector Current (Pulse)	I_{CP}		2.5	A
Collector Dissipation	P_C		1.2	W
		$T_c=25^\circ C$	20	W
Junction Temperature	T_J		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

* : On-chip Zener diode ($60\pm 10V$)**Electrical Characteristics** at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			10	mA
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=500mA$	1000	4000		
Gain-Bandwidth Product	f_T	$V_{CE}=5V, I_C=500mA$		180		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500mA, I_B=2mA$		1.0	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=500mA, I_B=2mA$			2.0	V

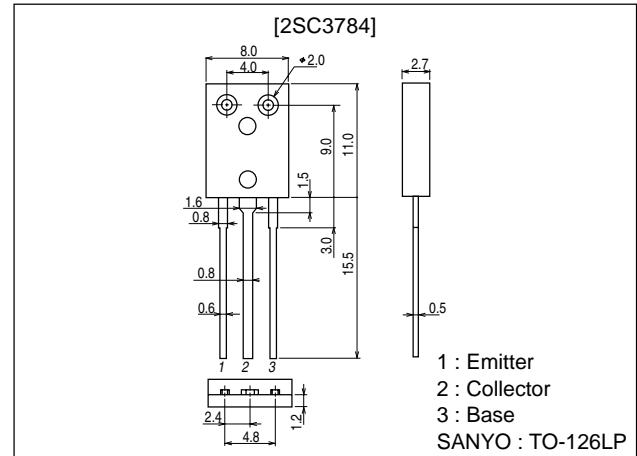
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Package Dimensions

unit:mm

2043B



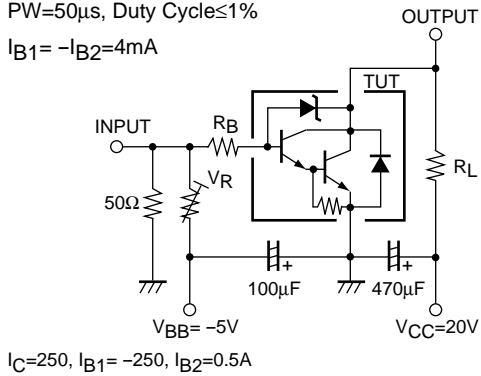
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Inductive Load Handling Capability	Es/b	L=100mH, R _{BE} =100Ω	15			mJ
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =100μA, I _E =0	50	60	70	V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =1mA, R _{BE} =∞	50	60	70	V
Turn-on Time	t _{on}	See specified Test Circuit.		0.2		μs
Storage Time	t _{stg}	See specified Test Circuit.		2.2		μs
Fall Time	t _f	See specified Test Circuit.		0.4		μs

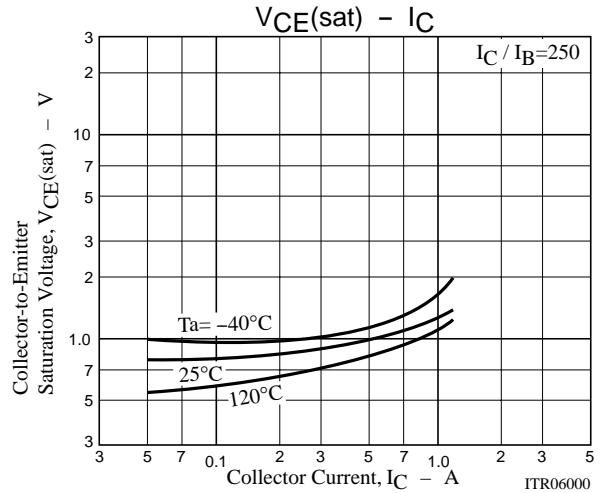
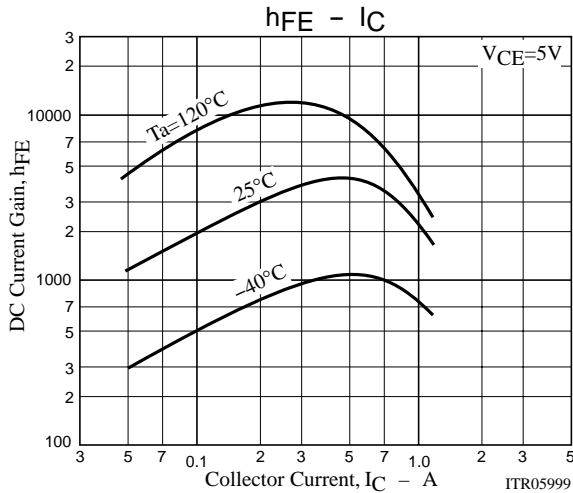
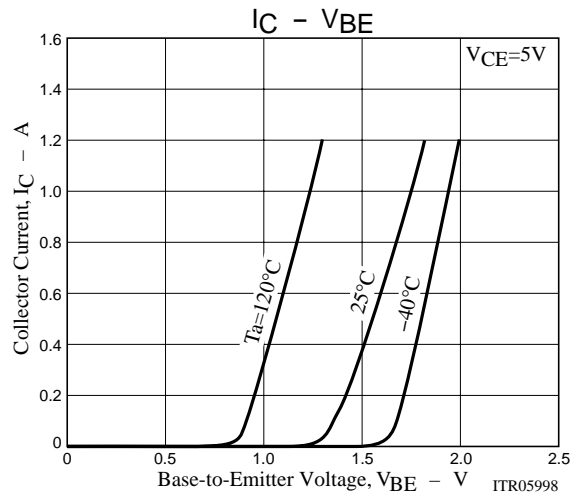
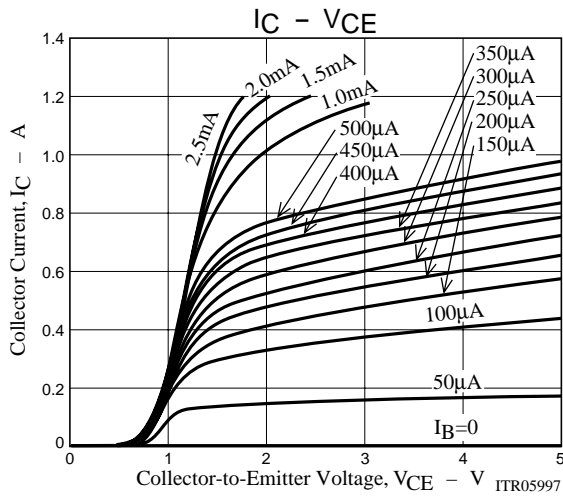
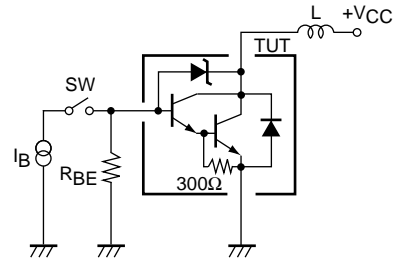
Switching Time Test Circuit

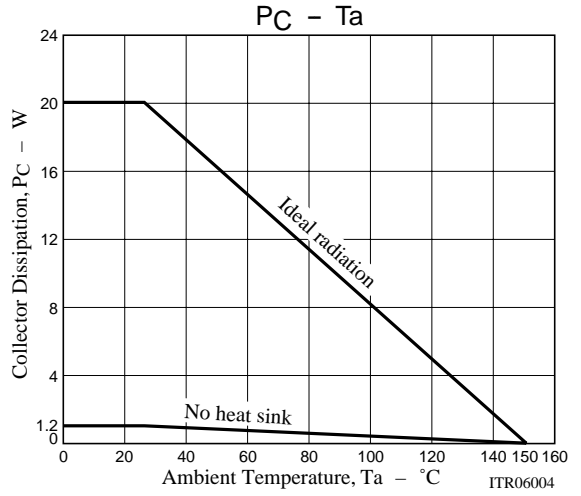
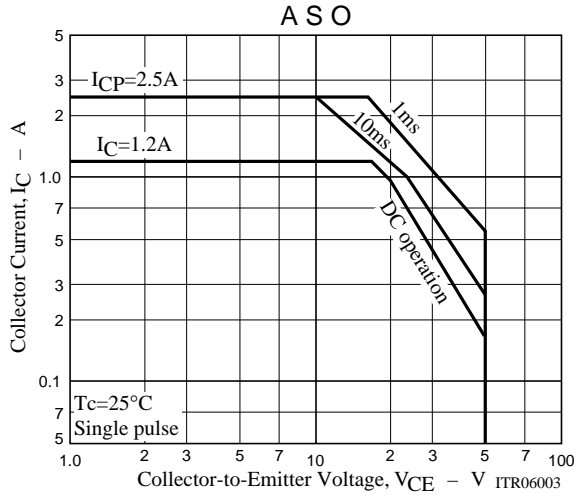
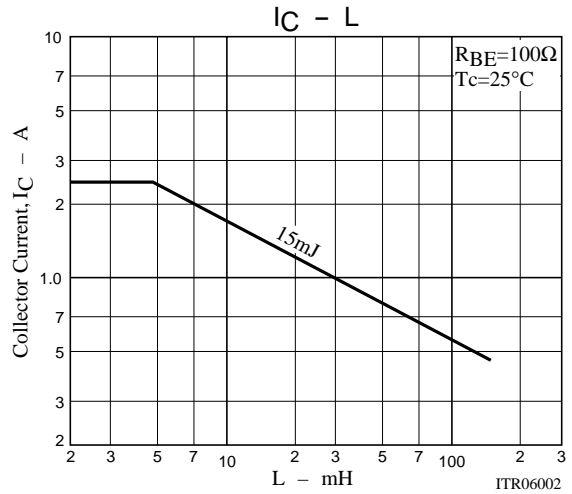
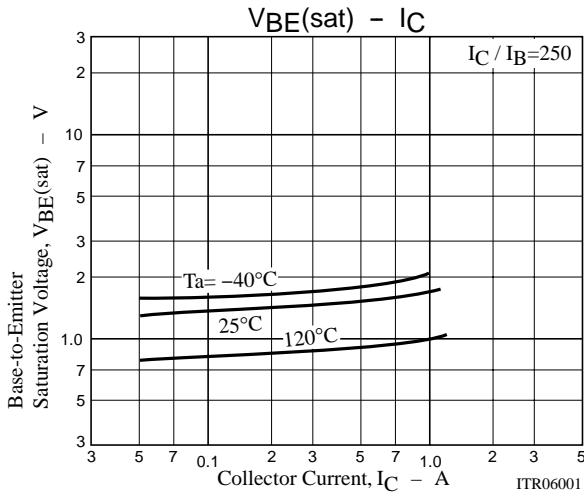
PW=50μs, Duty Cycle≤1%
I_{B1}=-I_{B2}=4mA



Es/b Test Circuit

V_{CC}=20V, R_{BE}=100Ω





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