



Driver Applications

Applications

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

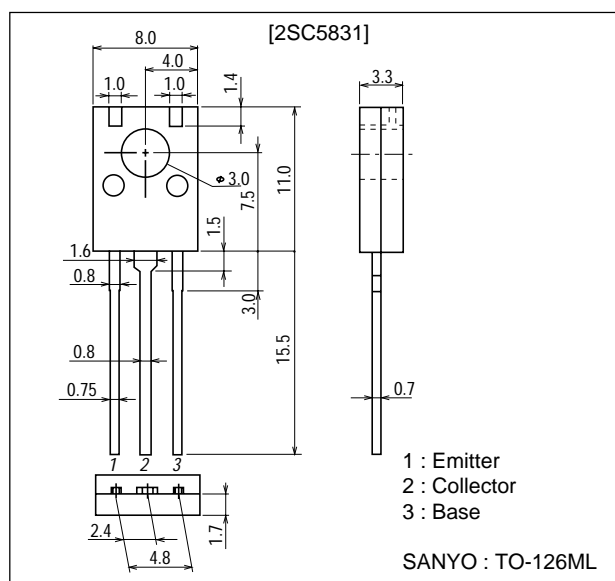
Features

- High DC current gain.
- Wide ASO.
- On-chip zener diode of $65\pm 10V$ between collector and base.
- Uniformity in collector-to-base voltage.
- Large inductive load handling capability.

Package Dimensions

unit : mm

2042B



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		*55	V
Collector-to-Emitter Voltage	V_{CEO}		*55	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}		4	A
Collector Dissipation	P_C		1.5	W
		$T_c=25^\circ C$	10	W
Junction Temperature	T_J		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

*: On-chip zener diode($65\pm 10V$)

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}	$V_{EB}=5V, I_C=0$			2	mA

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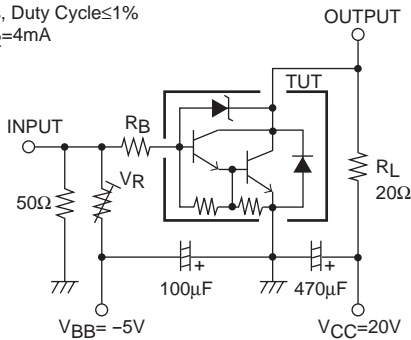
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=1A$	1000	4000		
Gain-Bandwidth Product	f_T	$V_{CE}=5V, I_C=1A$		180		MHz
Inductive Load	Es / b	$L=100mH, R_{BE}=100\Omega$	25			mJ
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A, I_B=4mA$		1.0	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A, I_B=4mA$			2.0	V
Collector-to-Base Breakdown Voltage	$V(BR)CBO$	$I_C=100\mu A, I_E=0$	55	65	75	V
Collector-to-Emitter Breakdown Voltage	$V(BR)CEO$	$I_C=1mA, R_{BE}=\infty$	55	65	75	V
Turn-ON Time	t_{on}	See specified Test Circuit.		0.2		μs
Storage Time	t_{stg}	See specified Test Circuit.		3.5		μs
Fall Time	t_f	See specified Test Circuit.		0.5		μs

Switching Time Test Circuit

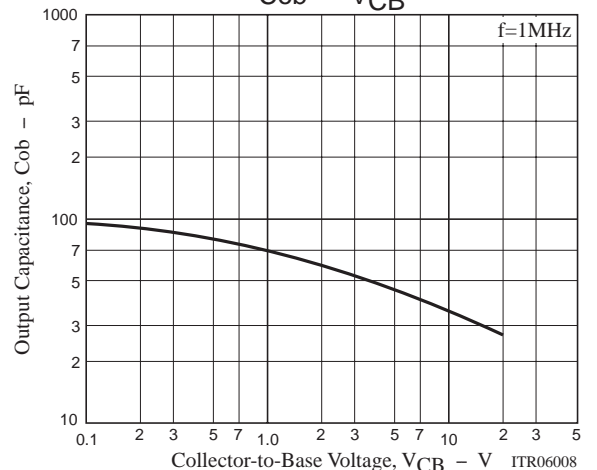
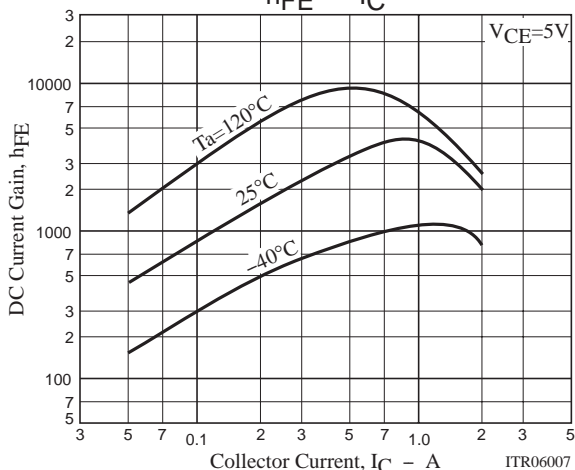
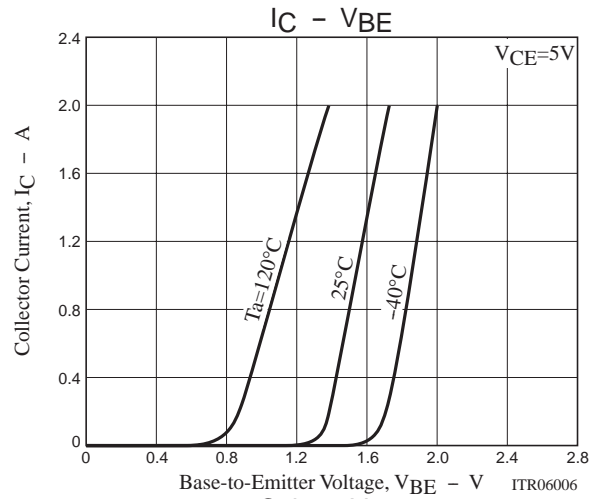
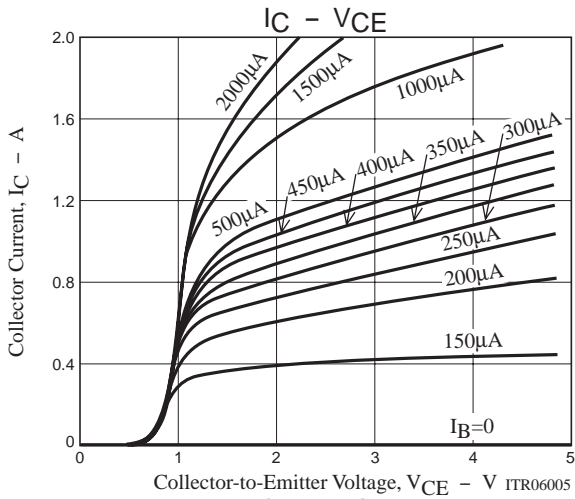
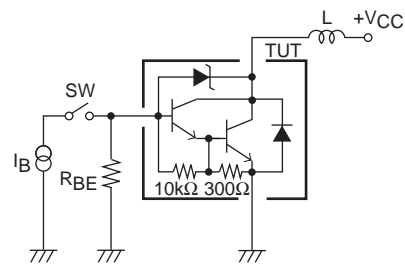
PW=50 μs , Duty Cycle \leq 1%
 $I_{B1} = -I_{B2} = 4mA$



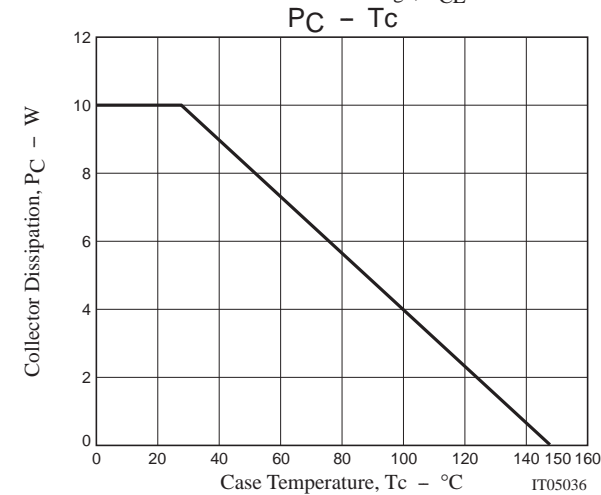
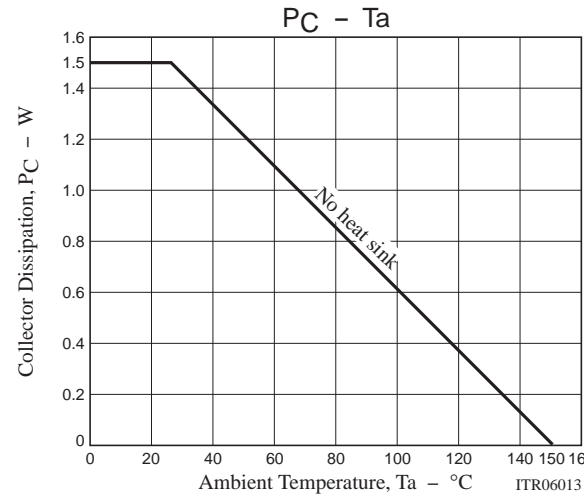
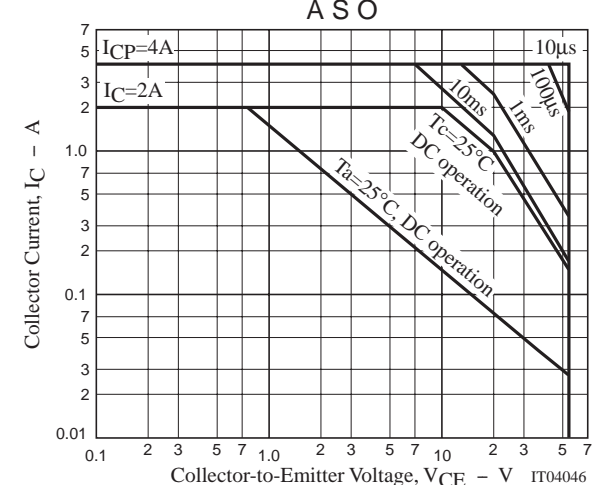
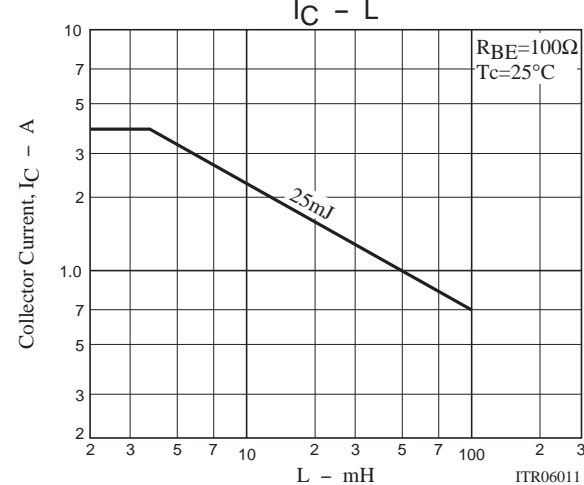
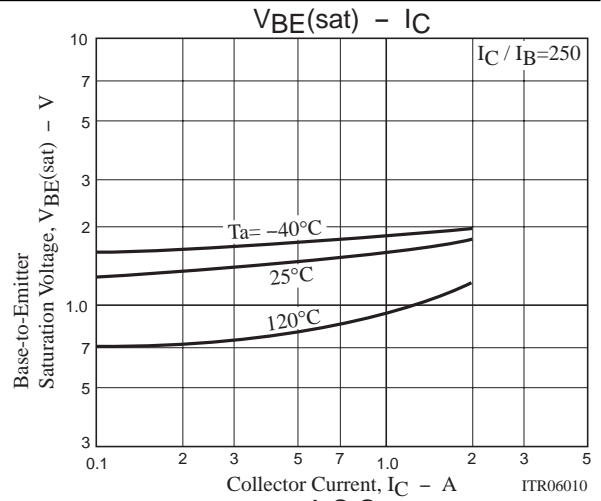
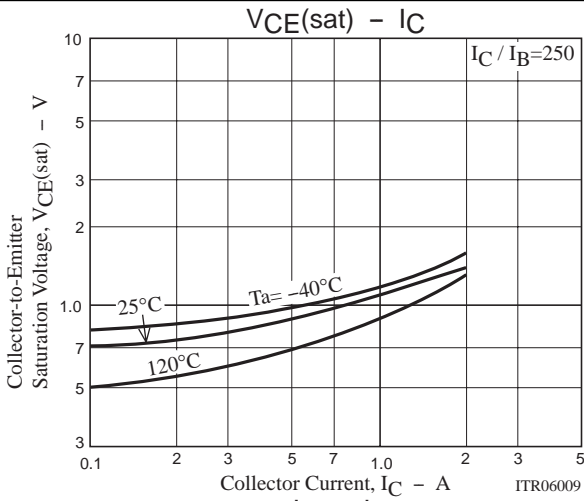
$I_C=250A, I_{B1} = -250A, I_{B2}=1A$

Es / b Test Circuit

$V_{CC}=20V, R_{BE}=100\Omega$



2SC5831



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