Ordering number: EN2220B

SANYO

No.2220B

2SC3986

NPN Planar Silicon Darlington Transistor

Driver Applications

Applications

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

Features

- High DC current gain.
- Large current capacity and wide ASO.
- On-chip zener diode of 60±10V between collector and base.
- Uniformity in collector-to-base breakdown voltage due to the adoption of an accurate impurity diffusion process.
- High inductive load handling capability.
- Micaless package facilitating mounting.

Absolute Maximum Ratings at Ta=25°C

				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		2	A
Collector Current (Pulse)	I_{CP}		4	A
Base Current	I_B		0.4	A
Collector Dissipation	P_C		2.0	W
		Tc=25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

※ : With Zener diode (60±10V)

Electrical Characteristics at Ta=25°C

			min	typ	max	unit
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
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
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=1A,I_B=4mA		1.0	1.5	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=1A,I_B=4mA			2.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=0.1mA,I_E=0	50	60	70	V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA,R_{BE}=∞	50	60	70	V
Inductive Load Handling Capability	Es/b	L=100mH, R_{BE}=100Ω	25			mJ

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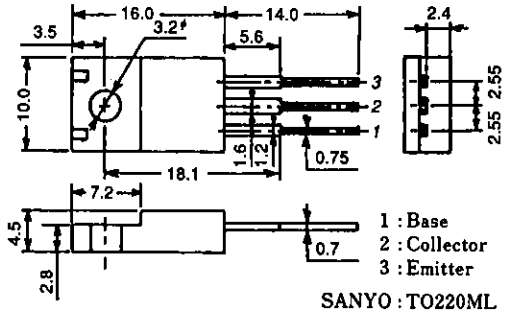
Package Dimensions 2041A
(unit : mm)



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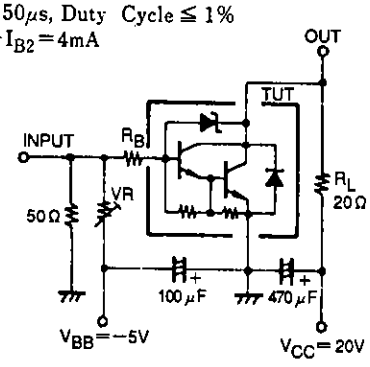
			min	typ	max	unit
Turn-ON Time	t_{on}	See specified Test Circuit.		0.2		μs
Storage Time	t_{stg}	V_{CC}=20V, I_C=1A,		3.5		μs
Fall Time	t_f	I_{B1}=−I_{B2}=4mA		0.5		μs

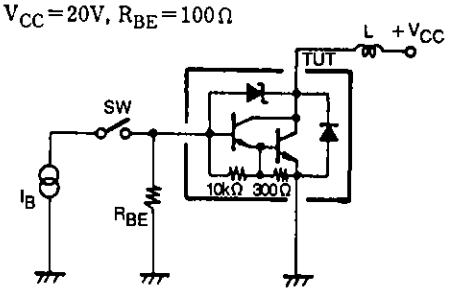
Switching Time Test Circuit

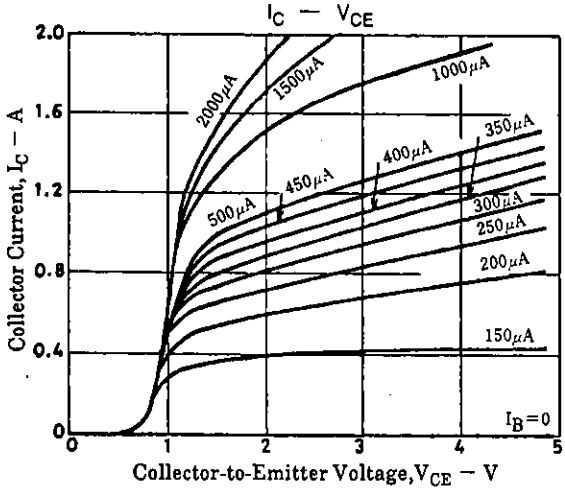
PW = 50μs, Duty Cycle ≦ 1%
I_{B1}=−I_{B2}=4mA

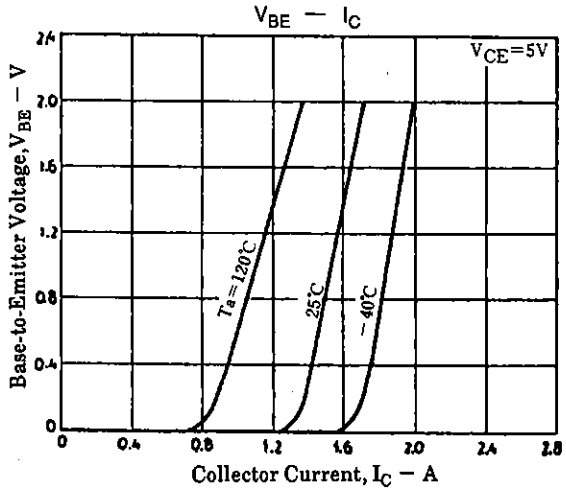


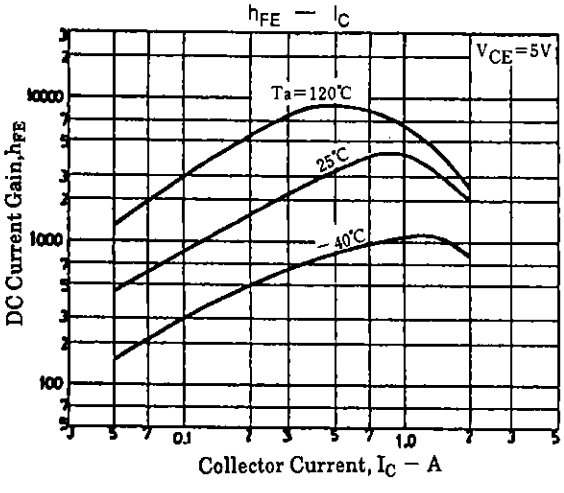
Es/b Test Circuit

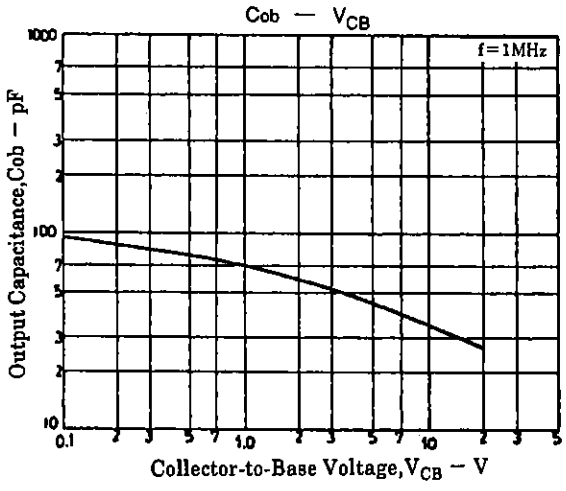
V_{CC}=20V, R_{BE}=100Ω



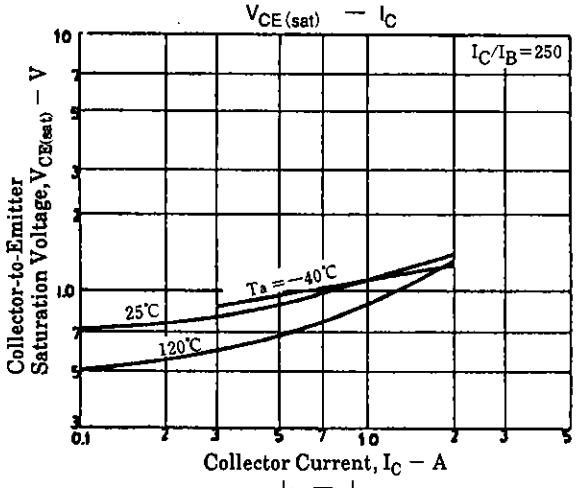




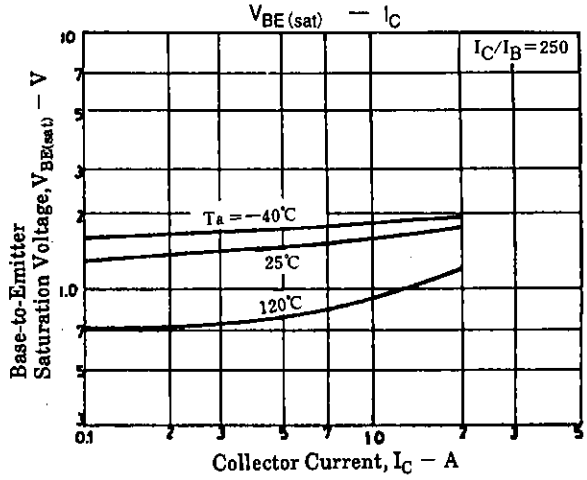




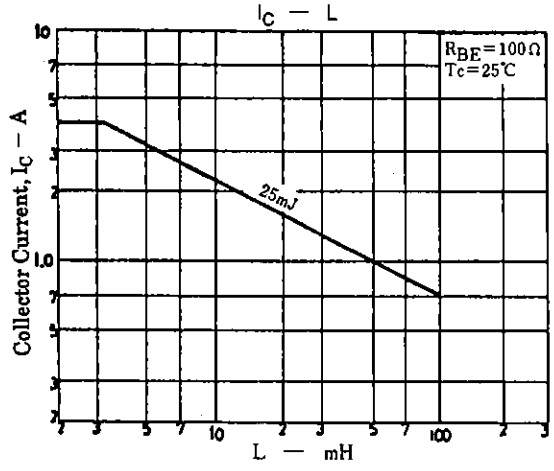
$V_{CE(sat)}$ — I_C



$V_{BE(sat)}$ — I_C



I_C — L



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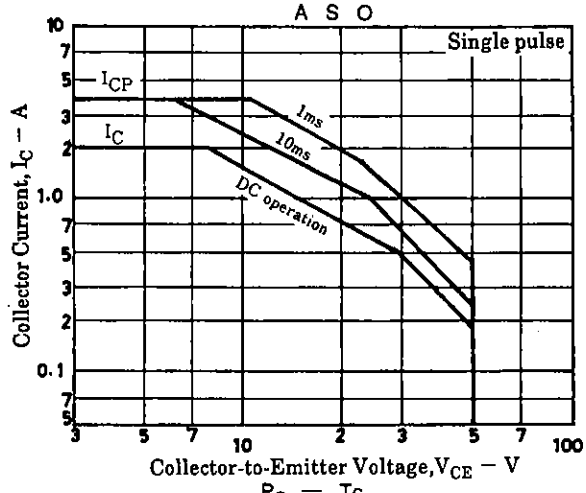
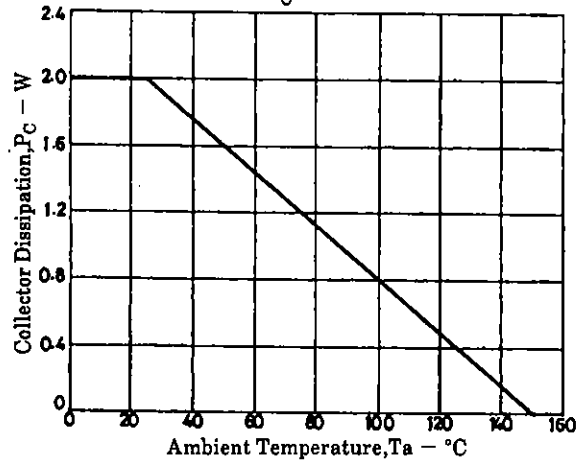


P_C — Ta



P_C — Tc