



2SC3987

Driver Applications

Applications

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

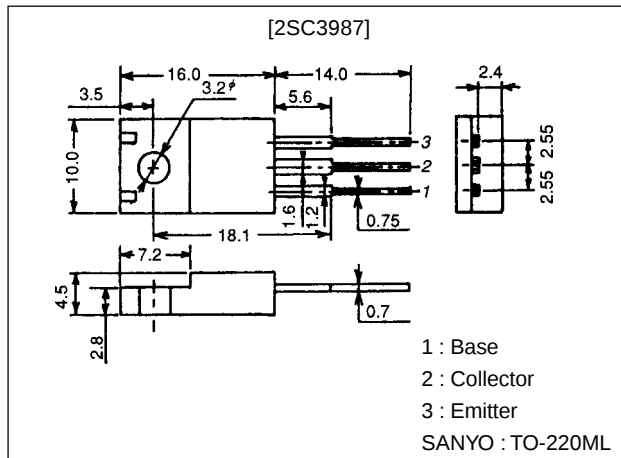
Features

- High DC current gain.
- Large current capacity and wide ASO.
- On-chip Zener diode of $60\pm 10\text{V}$ 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.

Package Dimensions

unit:mm

2041A



Specifications

Absolute Maximum Ratings at Ta = 25°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		3	A
Collector Current (Pulse)	I_{CP}		6	A
Base Current	I_B		0.6	A
Collector Dissipation	P_C		2.0	W
		$T_C=25^{\circ}\text{C}$	20	W
Junction Temperature	T_j		150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^{\circ}\text{C}$

* : With Zener diode (60±10V)

Electrical Characteristics at $T_a = 25^\circ\text{C}$

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
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=1.5A$	1000	4000		
Gain-Bandwidth Product	f_T	$V_{CE}=5V, I_C=1.5A$		180		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=6mA$		1.0	1.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=6mA$			2.0	V

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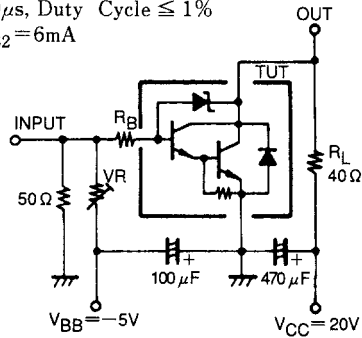
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N3098HA (KT)/O2196TS (KOTO) 8-0260 4237KI/N146AT, TS No.2221-1/4

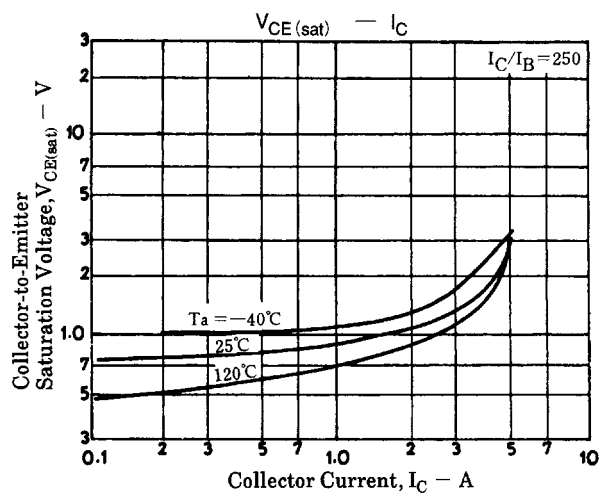
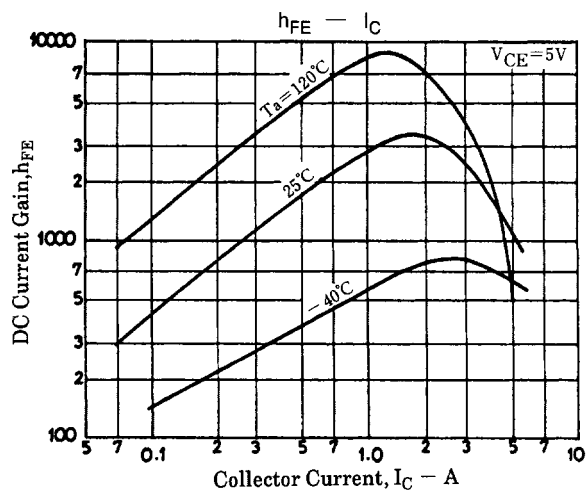
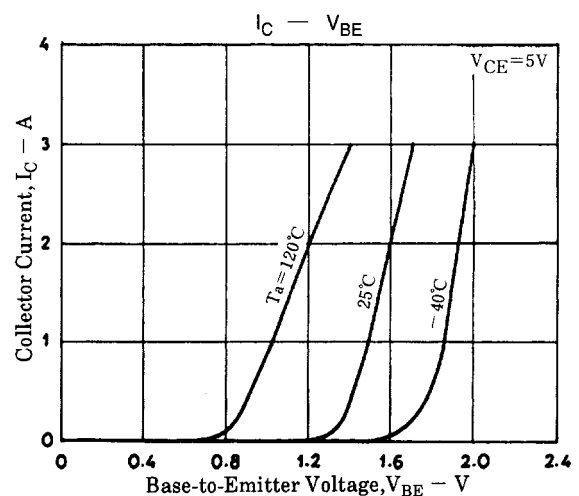
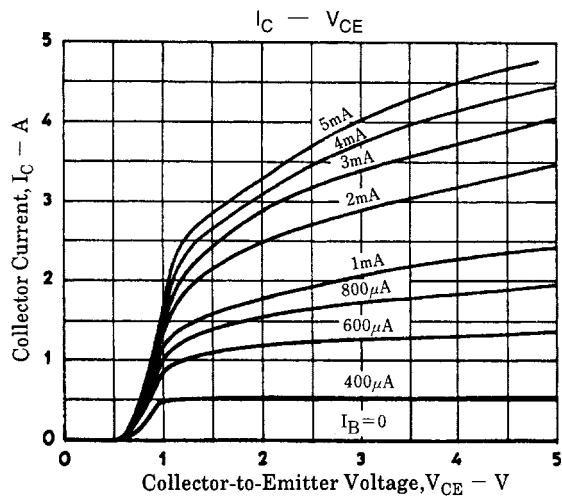
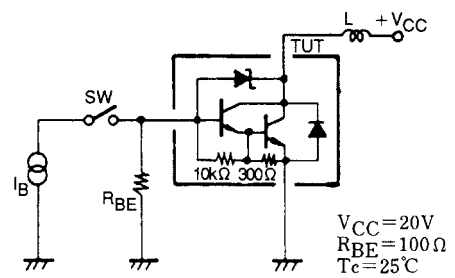
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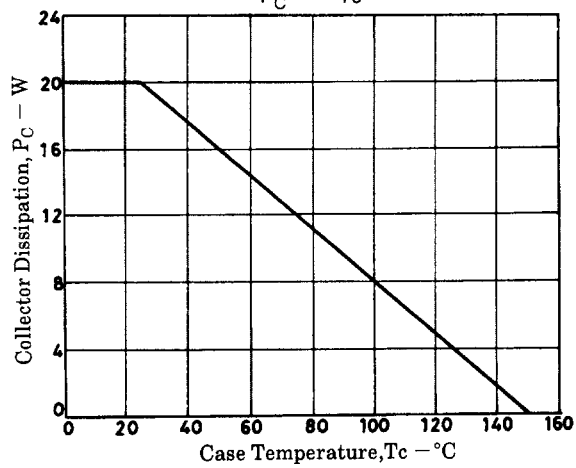
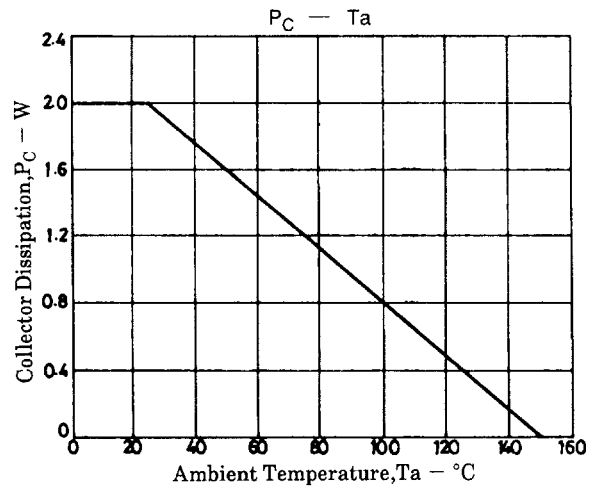
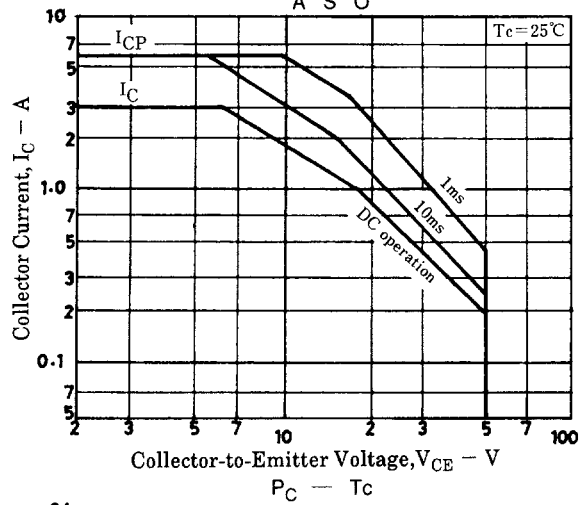
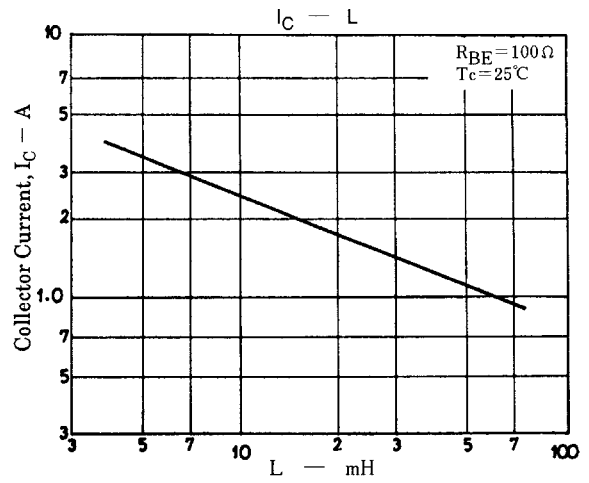
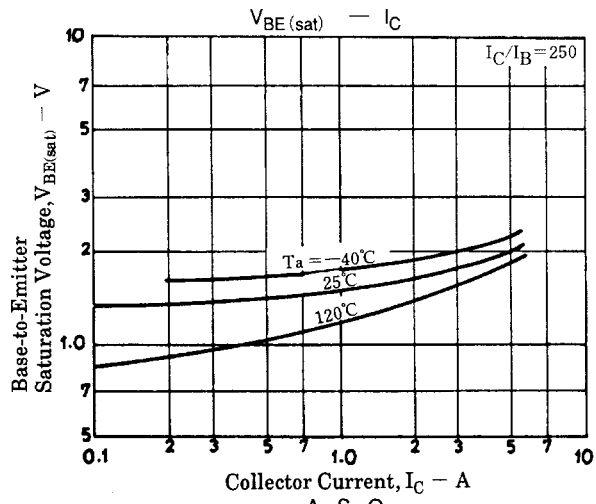
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=0.1mA, I_E=0$	50	60	70	V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50	60	70	V
Inductive Load Handling Capability	Es/b	$L=100mH, R_{BE}=100\Omega$	30			mJ
Turn-ON Time	t_{on}	See specified Test Circuit. $V_{CC}=20V, I_C=1.5A, I_{B1}=-I_{B2}=6mA$		0.2		μs
Storage Time	t_{stg}	See specified Test Circuit. $V_{CC}=20V, I_C=1.5A, I_{B1}=-I_{B2}=6mA$		3.0		μs
Fall Time	t_f	See specified Test Circuit. $V_{CC}=20V, I_C=1.5A, I_{B1}=-I_{B2}=6mA$		0.7		μs

Switching Time Test Circuit

$$\begin{aligned} \text{PW} &= 50\mu\text{s}, \text{Duty Cycle} \leq 1\% \\ I_{B1} &= -I_{B2} = 6\text{mA} \end{aligned}$$


Es/b Test Circuit





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