2SC3986



# **Driver Applications**

### **Applications**

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

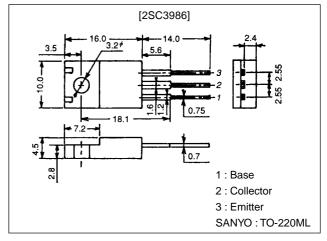
#### **Features**

- · 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.

## **Package Dimensions**

unit:mm

2041A



## **Specifications**

#### Absolute Maximum Ratings at Ta = 25°C

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Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		50*	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		50*	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		6	V
Collector Current	l <sub>C</sub>		2	Α
Collector Current (Pulse)	I <sub>CP</sub>		4	Α
Base Current	I <sub>B</sub>		0.4	Α
Collector Dissipation	PC		2.0	W
		Tc=25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

<sup>\*:</sup> With Zener diode (60±10V)

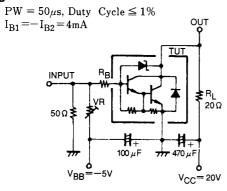
#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions		Ratings		
	Symbol		min	typ	max	Unit
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0			10	μΑ
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			2	mA
DC Current Gain	hFE	V <sub>CE</sub> =5V, I <sub>C</sub> =1A	1000	4000		
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =1A		180		MHz
Collector-to-Emitter Saturation Voltage	VCE(sat)	I <sub>C</sub> =1A, I <sub>B</sub> =4mA		1.0	1.5	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =4mA			2.0	V

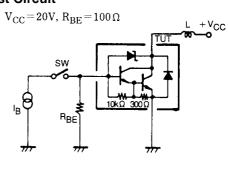
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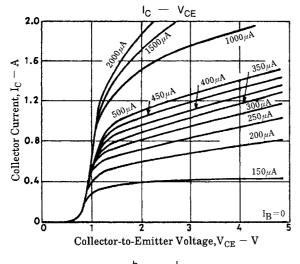
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Onit
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =0.1mA, I <sub>E</sub> =0	50	60	70	V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	50	60	70	V
Inductive Load Handling Capability	Es/b	L=100mH, $R_{BE}$ =100 $\Omega$	25			mJ
Turn-ON Time	ton	See specified Test Circuit.  VCC=20V, IC=1A, IB1=-IB2=4mA		0.2		μs
Storage Time	t <sub>stg</sub>	See specified Test Circuit.  VCC=20V, IC=1A, IB1=-IB2=4mA		3.5		μs
Fall Time	t <sub>f</sub>	See specified Test Circuit. V <sub>CC</sub> =20V, I <sub>C</sub> =1A, I <sub>B1</sub> =-I <sub>B2</sub> =4mA		0.5		μs

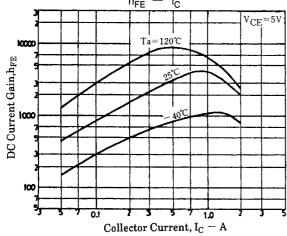
### **Switching Time Test Circuit**

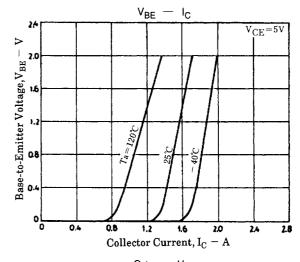


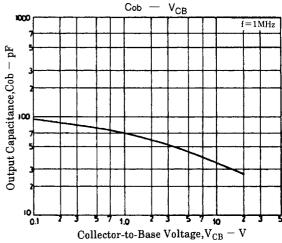
### Es/b Test Circuit

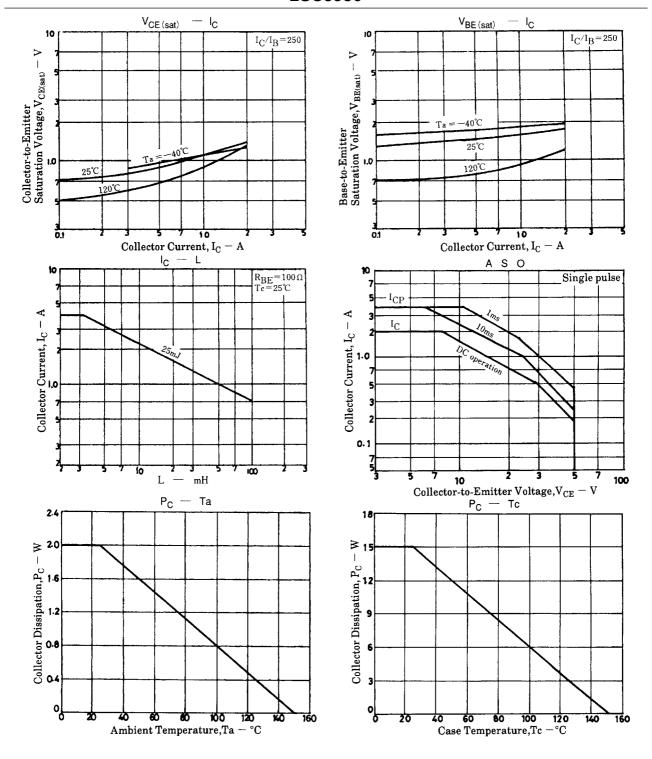












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