

# PRELIMINARY

Notice: this is not a final specification.  
Some parametric limits are subject to change.

# RT1C3904-T12

Transistor  
For General purpose Application  
Silicon NPN Epitaxial Type

RT1C3904 is a one chip transistor.

## FEATURE

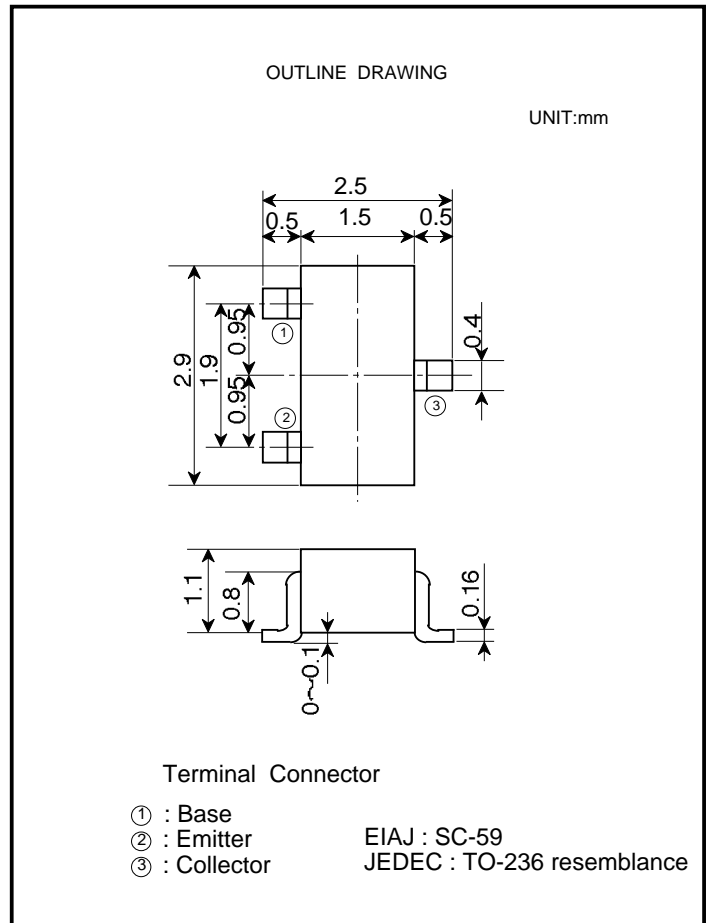
- Mini package for easy mounting.

## APPLICATION

General purpose transistor

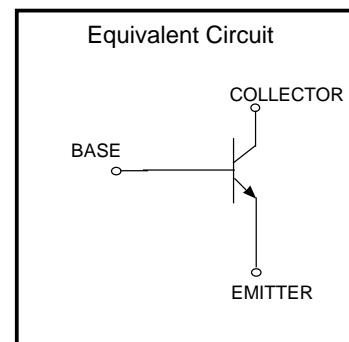
## MAXIMUM RATINGS (Ta=25 °C)

SYMBOL	PARAMETER	RATINGS	UNIT
V <sub>CEO</sub>	Collector to Emitter voltage	40	V
V <sub>CBO</sub>	Collector to Base voltage	60	V
V <sub>EBO</sub>	Emitter to Base voltage	6.0	V
I <sub>C</sub>	Collector current	200	mA



## THERMAL CHARACTERISTICS

SYMBOL	Characteristics	RATINGS	UNIT
P <sub>D</sub>	Total Device Dissipation Glass-Epoxy Board <sup>(1)</sup> Ta=25	225	mW
	Derate Above 25	1.8	mW/°C
R <sub>JA</sub>	Thermal Resistance Junction to Ambient	556	/mW
	Total Device Dissipation Alumina Substrate <sup>(2)</sup> Ta=25	300	mW
R <sub>JA</sub>	Derate Above 25	2.4	mW/°C
	Thermal Resistance Junction to Ambient	417	/mW
T <sub>j</sub>	Junction temperature	+150	
T <sub>stg</sub>	Storage temperature	-55 to +150	



## ELECTRICAL CHARACTERISTICS (Ta=25 °C unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
V <sub>(BR)CEO</sub>	C to E break down voltage <sup>(3)</sup>	I <sub>C</sub> =1.0mA, I <sub>B</sub> =0	40			V
V <sub>(BR)CBO</sub>	C to B break down voltage	I <sub>C</sub> =10 μA, I <sub>E</sub> =0	60			V
V <sub>(BR)EBO</sub>	E to B break down voltage	I <sub>C</sub> =10 μA, I <sub>C</sub> =0	6			V
I <sub>BL</sub>	Base cut off current	V <sub>CE</sub> =30V, V <sub>EB</sub> =3.0V			50	nA
I <sub>CEX</sub>	Collector cut off current	V <sub>CE</sub> =30V, V <sub>EB</sub> =3.0V			50	nA

1. Glass-Epoxy=1.0 × 0.75 × 3.2in
2. Alumina=0.4 × 0.3 × 3.2 in
3. Pulse test

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SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
hFE	DC current gain	I <sub>C</sub> =0.1mA, V <sub>CE</sub> =1.0V	40		-	
		I <sub>C</sub> =1.0mA, V <sub>CE</sub> =1.0V	70		-	
		I <sub>C</sub> =10mA, V <sub>CE</sub> =1.0V	100		300	
		I <sub>C</sub> =50mA, V <sub>CE</sub> =1.0V	60		-	
		I <sub>C</sub> =100mA, V <sub>CE</sub> =1.0V	30		-	
V <sub>CE(sat)</sub>	Collector-Emitter saturation Voltage	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	-		0.2	V
		I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-		0.3	V
V <sub>BE(sat)</sub>	Base-Emitter saturation Voltage	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	0.65		0.85	V
		I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA	-		0.95	V
f <sub>T</sub>	Current Gain Bandwidth product	I <sub>C</sub> =10mA, V <sub>CE</sub> =20V, f=100MHz	300		-	MHz
C <sub>obo</sub>	Output Capacitance	V <sub>CB</sub> =5V, I <sub>E</sub> =0, f <sub>T</sub> =1.0MHz	-		4.0	pF



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