

**Inchange Semiconductor**

**Product Specification**

**Silicon NPN Power Transistors**

**2SC3974**

**DESCRIPTION**

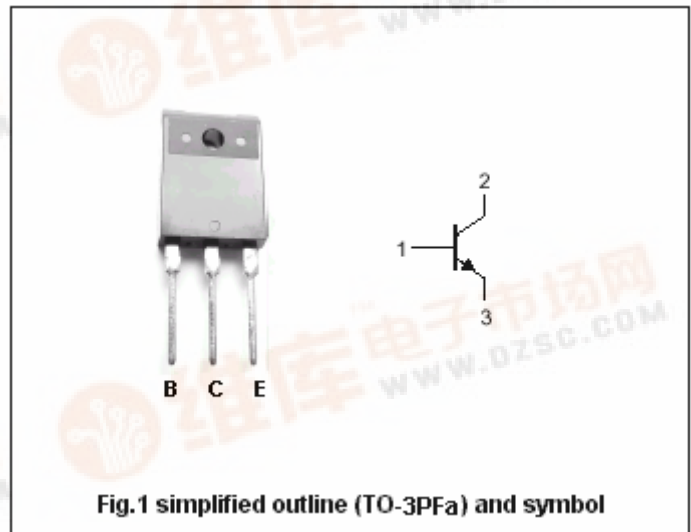
- With TO-3PFa package
- High voltage
- High speed switching
- Wide area of safe operation

**APPLICATIONS**

- For high voltage, and high speed Switching applications.

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	800	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	500	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	5	V
I <sub>C</sub>	Collector current (DC)		7	A
I <sub>CP</sub>	Collector current (Pulse)		15	A
I <sub>B</sub>	Base Collector current (DC)		4	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	80	W
		T <sub>a</sub> =25°C	3	
T <sub>j</sub>	Max.operating junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-55~150	°C

## Silicon NPN Power Transistors

## 2SC3974

## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =10mA ; I <sub>B</sub> =0	500			V
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =4A ; I <sub>B</sub> =0.8A			1.0	V
V <sub>BE(sat)</sub>	Base-emitter saturation voltage	I <sub>C</sub> =4A ; I <sub>B</sub> =0.8A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =800V ; I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V ; I <sub>C</sub> =0			0.1	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =0.1A ; V <sub>CE</sub> =5V	15			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =4A ; V <sub>CE</sub> =5V	8			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V, f=1MHz	20			MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =4A ; I <sub>B1</sub> =0.8A , I <sub>B2</sub> =-1.6A V <sub>CC</sub> =200V			1.0	μ s
t <sub>s</sub>	Storage time				3.0	μ s
t <sub>f</sub>	Fall time				0.3	μ s

