# Changjiang

### JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

## **TO-92 Plastic-Encapsulate Transistors**

\$9013 TRANSISTOR ( NPN )

#### **FEATURE**

Power dissipation

P<sub>CM</sub> : 0.625 W (Tamb=25 )

Collector current

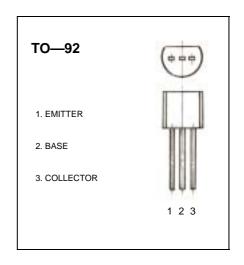
I<sub>CM:</sub> 0.5 A

Collector-base voltage

 $V_{(BR)CBO}$ : 40 V

Operating and storage junction temperature range

Tj,  $T_{stg}$ : -55 to +150



#### ELECTRICAL CHARACTERISTICS (Tamb=25 unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V(BR) <sub>CBO</sub>	Ic= 100 μ A , I <sub>E</sub> =0	40			V
Collector-emitter breakdown voltage	V(BR) <sub>CEO</sub>	I <sub>C</sub> = 1 mA , I <sub>B</sub> =0	25			V
Emitter-base breakdown voltage	V(BR) <sub>EBO</sub>	I <sub>E</sub> = 100 μ A , I <sub>C</sub> =0	5			V
Collector cut-off current	-off current $I_{CBO}$ $V_{CB}$ = 40V , $I_{E}$ =0				0.1	μА
Collector cut-off current	current I <sub>CEO</sub> V <sub>CE</sub> =2				0.1	μА
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> =0			0.1	μА
DC ourrent gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =50mA	64		300	
DC current gain	h <sub>FE(2)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> = 500mA	40			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50mA			0.6	V
Base-emitter voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50mA			1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =6V,I <sub>C</sub> =20mA, f=30MHz	150			MHz

#### **CLASSIFICATION OF h**<sub>FE(1)</sub>

Rank	D	Е	F	G	Н	1
Range	64-91	78-112	96-135	112-166	144-202	190-300