

### 2SA1013 TRANSISTOR (PNP)

#### FEATURE

Power dissipation

$$P_{CM} : 0.9 \text{ W (Tamb=25°C)}$$

Collector current

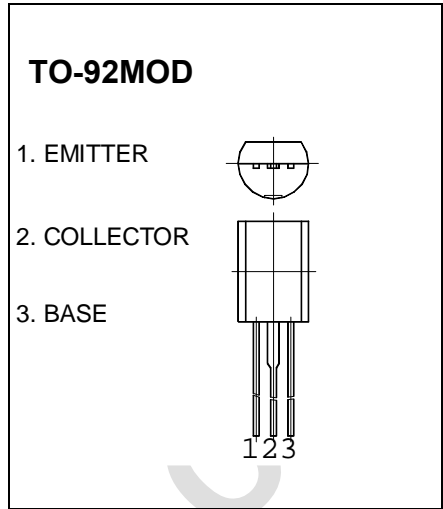
$$I_{CM} : -1 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : -160 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg} : -55^\circ\text{C to } +150^\circ\text{C}$$



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

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-160		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1 \text{ mA}, I_B = 0$	-160		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10 \text{ Ma}, I_C = 0$	-6		V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -150 \text{ V}, I_E = 0$		-1	$\mu\text{A}$
Collector cut-off current	$I_{CEO}$	$V_{CE} = -120 \text{ V}, I_B = 0$		-10	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -6 \text{ V}, I_C = 0$		-1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE} = -5 \text{ V}, I_C = -200 \text{ mA}$	65	310	
	$h_{FE(2)}$	$V_{CE} = -5 \text{ V}, I_C = -50 \text{ mA}$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$		-1.5	V
Base-emitter voltage	$V_{BE}$	$I_C = -5 \text{ mA}, V_{CE} = -5 \text{ V}$		-0.75	V
Transition frequency	$f_T$	$V_{CE} = -5 \text{ V}, I_C = -200 \text{ mA}$ $f = 30 \text{ MHz}$	15		MHz

#### CLASSIFICATION OF $h_{FE(1)}$

Rank	R	O	Y
Range	60-120	120-200	200-300