

## TO-92MOD Plastic-Encapsulated Transistors

### 2SA1160 TRANSISTOR (PNP)

#### FEATURE

Power dissipation

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

Collector current

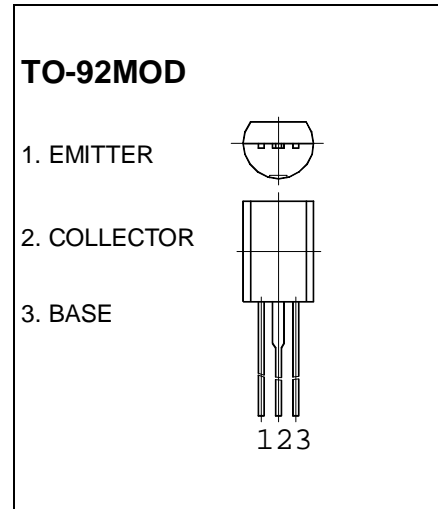
$$I_{CM}: -2\text{A}$$

Collector-base voltage

$$V_{(BR)CBO}: -20 \text{ V}$$

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	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -1\text{mA}, I_E = 0$	-20			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-10			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -1\text{mA}, I_C = 0$	-6			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -20 \text{ V}, I_E = 0$			-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -6 \text{ V}, I_C = 0$			-0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE} = -1\text{V}, I_C = -0.5\text{A}$	140		600	
	$h_{FE(2)}$	$V_{CE} = -1\text{V}, I_C = -4\text{A}$	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2\text{A}, I_B = -50\text{mA}$		-0.2	-0.5	V
Transition frequency	$f_T$	$V_{CE} = -1\text{V}, I_C = -0.5\text{A}$		140		MHz
Output capacitance	$C_{ob}$	$V_{CE} = -10\text{V}, I_E = 0, f = 1 \text{ MHz}$		50		pF

#### CLASSIFICATION OF $h_{FE}$

Rank	A	B	C
Range	140-280	200-400	300-600