

TO-92MOD Plastic-Encapsulate Transistors

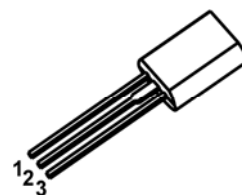
2SA1160 TRANSISTOR (PNP)

FEATURES

- High DC Current Gain and Excellent h_{FE} Linearity
- Low Saturation Voltage

TO – 92MOD

1. EMITTER
2. COLLECTOR
3. BASE



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-20	V
V_{CEO}	Collector-Emitter Voltage	-10	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Collector Current	-2	A
P_C	Collector Power Dissipation	900	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	139	$^\circ\text{C}/\text{W}$
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ 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	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6\text{V}, I_C = 0$			-0.1	μA
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	$V_{CE(sat)}$	$I_C = -2\text{A}, I_B = -0.05\text{A}$			-0.5	V
Base-emitter voltage	V_{BE}	$V_{CE} = -1\text{V}, I_C = -2\text{A}$			-1.5	V
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		50		pF
Transition frequency	f_T	$V_{CE} = -1\text{V}, I_C = -0.5\text{A}$		140		MHz

CLASSIFICATION OF $h_{FE(1)}$

RANK	A	B	C
RANGE	140-280	200-400	300-600