

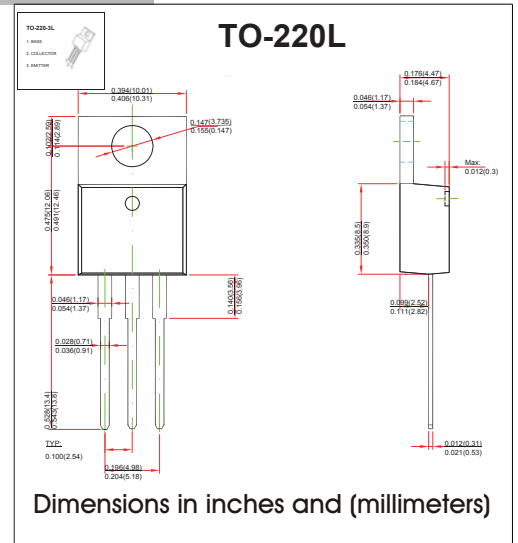
## TO-220L Plastic-Encapsulate Transistors

### FEATURES

- High Current Switching Applications
- Low Collector Saturation Voltage
- High Speed Switching Time
- TRANSISTOR (PNP)

### MECHANICAL DATA

- Case style: TO-220L molded plastic
- Mounting position: any



### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	-60	V
$V_{CE0}$	Collector-Emitter Voltage	-50	V
$V_{EB0}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-5	A
$P_C$	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	62.5	°C/W
$T_j$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature Range	-55~+150	°C

#### PACKAGE INFORMATION

Device	Package	Shipping
2SA1012	TO-220L	50/Tape&Reel

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -0.1mA, I_E = 0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C = -10mA, I_B = 0$	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu A, I_C = 0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = -50V, I_E = 0$			-1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5V, I_C = 0$			-1	$\mu A$
DC current gain	$h_{FE(1)}$	$V_{CE} = -1V, I_C = -1A$	70		240	
	$h_{FE(2)}^*$	$V_{CE} = -1V, I_C = -3A$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C = -3A, I_B = -150mA$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C = -3A, I_B = -150mA$			-1.2	V
Transition frequency	$f_T$	$V_{CE} = -4V, I_C = -1A$		60		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$		170		pF
Turn-on Time	$t_{on}$	$V_{CC} = -30V, I_C = -3A, I_{B1} = -I_{B2} = -0.15A$		0.1		$\mu s$
Storage Time	$t_s$		1.0			
Fall Time	$t_f$		0.1			

\*Pulse test:  $t_p \leq 300\mu s, \delta \leq 0.02$ .

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

Rank	O	Y
Range	70-140	120-240