

# 2SA1012

## Plastic-Encapsulate Transistors (PNP)

### Features

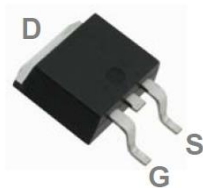
- High Current Switching Applications.
- Low Collector Saturation Voltage
- High Speed Switching Time
- RoHS compliant package

### Applications

- High speed switching

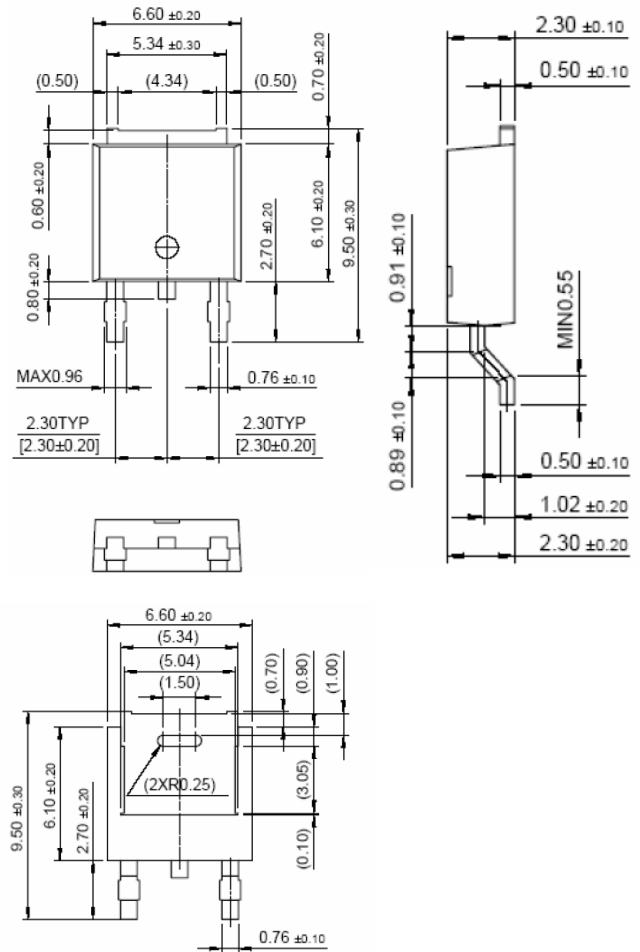
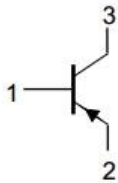
### Packing & Order Information

3,000/Reel



**RoHS  
COMPLIANT**

### Graphic symbol



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	-60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-50	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current -Continuous	-5	A
P <sub>C</sub>	Collector Dissipation	1.25	W
R <sub>θJA</sub>	Thermal resistance junction to ambient	100	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +150	°C

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#### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

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

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

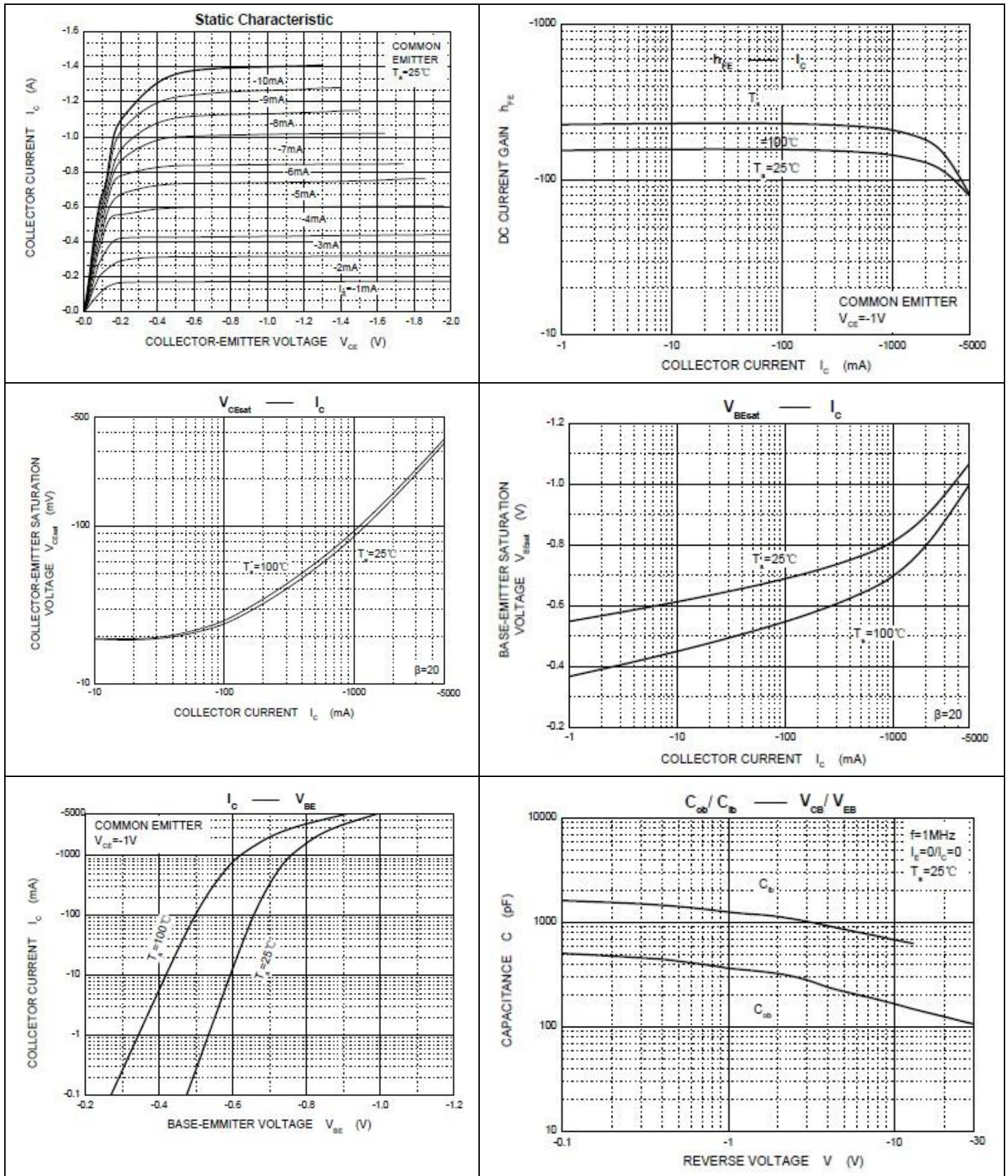
#### CLASSIFICATION of $h_{FE(1)}$

Rank	O	Y
Range	70-140	120-240

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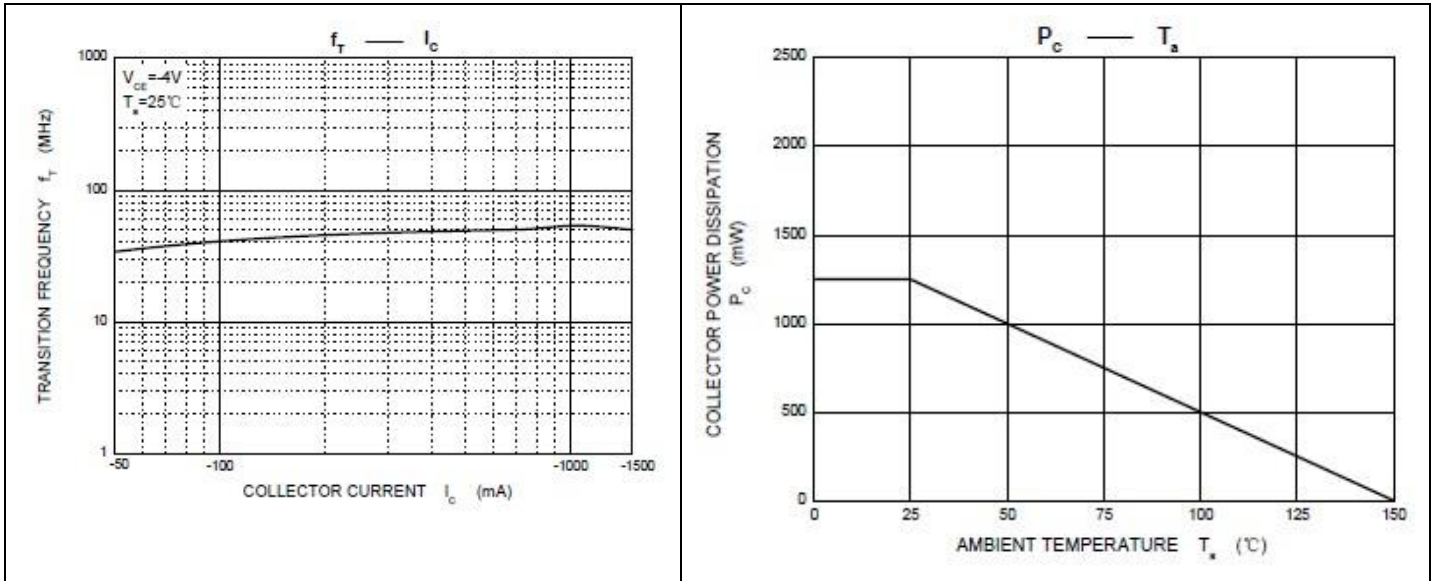
#### ■ Typical Characteristics



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#### ■ Typical Characteristics



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