



Micro Commercial Components



Micro Commercial Components  
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**2SA1013-R**  
**2SA1013-O**  
**2SA1013-Y**

**PNP**  
**Epitaxial Silicon**  
**Transistor**

**Features**

- Lead Free Finish/Rohs Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Capable of 0.9Watts of Power Dissipation.
- Collector-current -1.0A
- Collector-base Voltage -160V
- Operating and storage junction temperature range: -55°C to +150°C
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Symbol	Parameter	Min	Max	Units
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**OFF CHARACTERISTICS**

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=-1.0mA$ , $I_B=0$ )	-160	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=-100\mu A$ , $I_E=0$ )	-160	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=-10mA$ , $I_C=0$ )	-6.0	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=-150Vdc$ , $I_E=0$ )	---	-1.0	$\mu A$
$I_{CEO}$	Collector Cutoff Current ( $V_{CB}=-120Vdc$ , $I_E=0$ )	---	-10	$\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=-6.0Vdc$ , $I_C=0$ )	---	-1.0	$\mu A$

**ON CHARACTERISTICS**

$h_{FE(1)}$	DC Current Gain ( $I_C=-200mA$ , $V_{CE}=-5.0Vdc$ )	65	310	---
$h_{FE(2)}$	DC Current Gain ( $I_C=-50mA$ , $V_{CE}=-5.0Vdc$ )	40	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=-500mA$ , $I_B=-50mA$ )	---	-1.5	Vdc
$V_{BE}$	Base-Emitter Saturation Voltage ( $I_C=-5.0mA$ , $V_{CE}=-5.0Vdc$ )	---	-0.75	Vdc

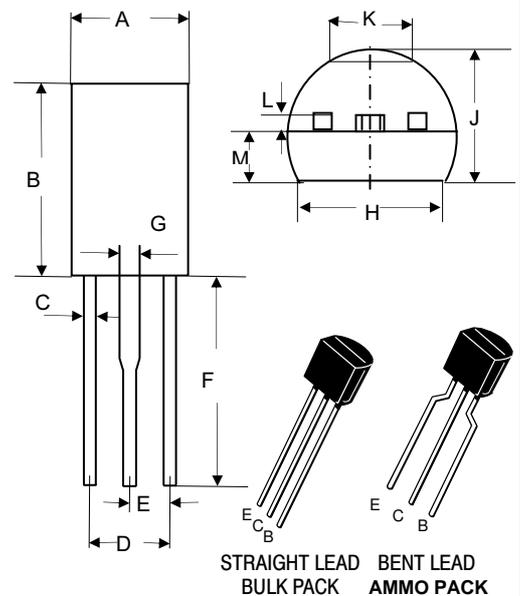
**SMALL-SIGNAL CHARACTERISTICS**

$f_T$	Transistor Frequency ( $I_C=-200mA$ , $V_{CE}=-5.0Vdc$ , $f=30MHz$ )	-15	---	MHz
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**CLASSIFICATION OF  $h_{FE(1)}$**

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

**TO-92MOD**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.228	.244	5.80	6.20	
B	.331	.346	8.40	8.80	
C	.016	.024	0.40	0.60	
D	.114	.122	2.90	3.10	Straight Lead
	.173	.220	4.40	5.60	Bent Lead
E	.059		1.50		Straight Lead
	.086	.110	2.20	2.80	Bent Lead
F	.543	.559	13.80	14.20	
G	.035	.043	0.90	1.10	
H	.157	---	4.00	---	
J	.185	.201	4.70	5.10	
K	---	.063	---	1.60	
L	.016	.020	0.40	0.50	
M	.068	.080	1.73	2.03	

\* For ammo packing detailed specification, click here to visit our website of product packaging for details.



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### Ordering Information :

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk: 50Kpcs/Carton

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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