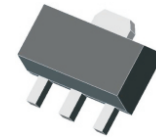


## 2SA1213-G Series (PNP) RoHS Device

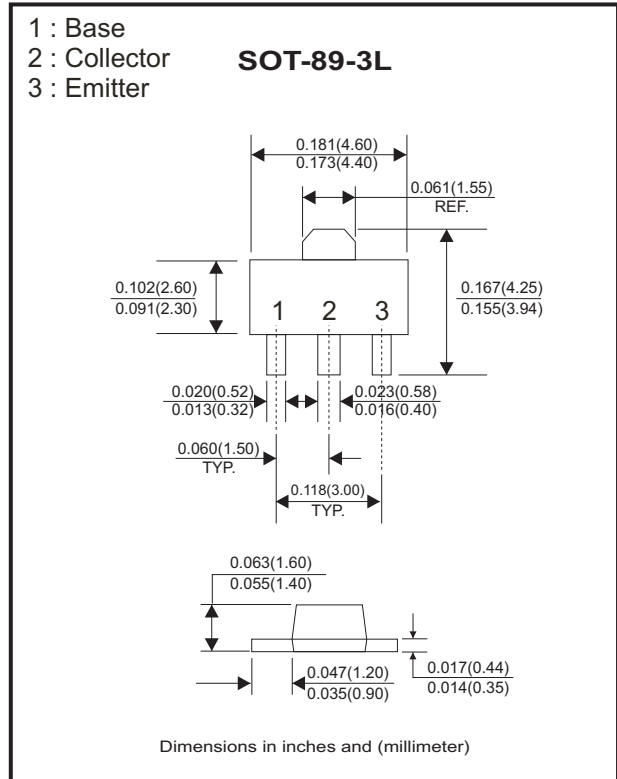


### Features

- Small flat package.
- Power amplifier and switching applications.
- Low saturation voltage.
- High speed switching time.

### Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base voltage	V <sub>CB0</sub>	-50	V
Collector-Emitter voltage	V <sub>CEO</sub>	-50	V
Emitter-Base voltage	V <sub>EBO</sub>	-5	V
Continuous current	I <sub>c</sub>	-2	A
Collector power dissipation	P <sub>c</sub>	500	mW
Thermal resistance from junction to ambient	R <sub>θJA</sub>	250	°C/W
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C



### Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Min	Max	Unit
Collector-base breakdown voltage	I <sub>c</sub> = -0.1mA , I <sub>E</sub> = 0	V <sub>(BR)CBO</sub>	-50			V
Collector-emitter breakdown voltage	I <sub>c</sub> = -10mA , I <sub>B</sub> = 0	V <sub>(BR)CEO</sub>	-50			V
Emitter-base breakdown voltage	I <sub>E</sub> = -0.1mA , I <sub>c</sub> = 0	V <sub>(BR)EBO</sub>	-5			V
Collector cut-off current	V <sub>CB</sub> = -50V , I <sub>E</sub> = 0	I <sub>CBO</sub>			-100	nA
Emitter cut-off current	V <sub>EB</sub> = -5V , I <sub>c</sub> = 0	I <sub>EBO</sub>			-100	nA
DC current gain	V <sub>CE</sub> = -2V , I <sub>c</sub> = -500mA	h <sub>FE</sub>	70		240	
	V <sub>CE</sub> = -2V , I <sub>c</sub> = -2A		20			
Collector-emitter saturation voltage	I <sub>c</sub> = -1A , I <sub>B</sub> = -50mA	V <sub>CE(sat)</sub>			-0.5	V
Base-emitter saturation voltage	I <sub>c</sub> = -1A , I <sub>B</sub> = -50mA	V <sub>BE(sat)</sub>			-1.2	V
Collector output capacitance	V <sub>CB</sub> = -10V , I <sub>E</sub> = 0 , f = 1MHZ	C <sub>ob</sub>		40		pF
Transition frequency	V <sub>CE</sub> = -2V , I <sub>c</sub> = -0.5A	f <sub>T</sub>	100			MHz

### Classification Of hFE

Part No.	2SA1213O-G	2SA1213Y-G
Range	70-140	120-240
Marking	NO	NY

## RATING AND CHARACTERISTIC CURVES (2SA1213-G)

Fig.1 - Static Characteristic

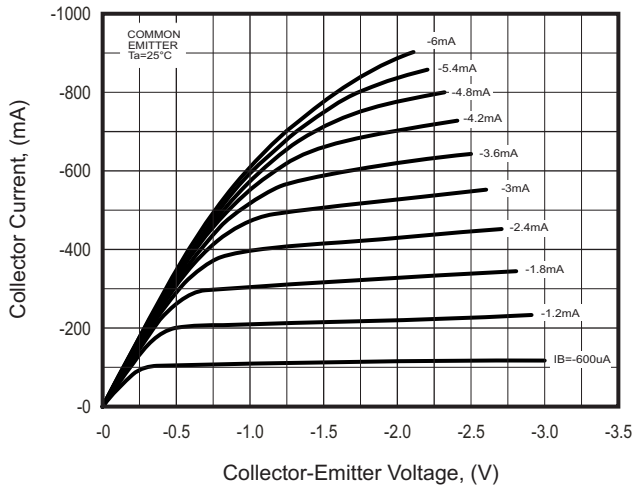


Fig.2 -  $h_{FE} - I_c$

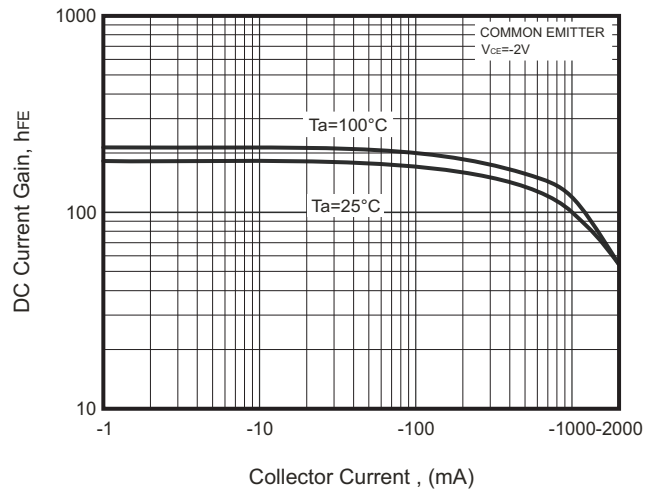


Fig.3 -  $V_{CEsat} - I_c$

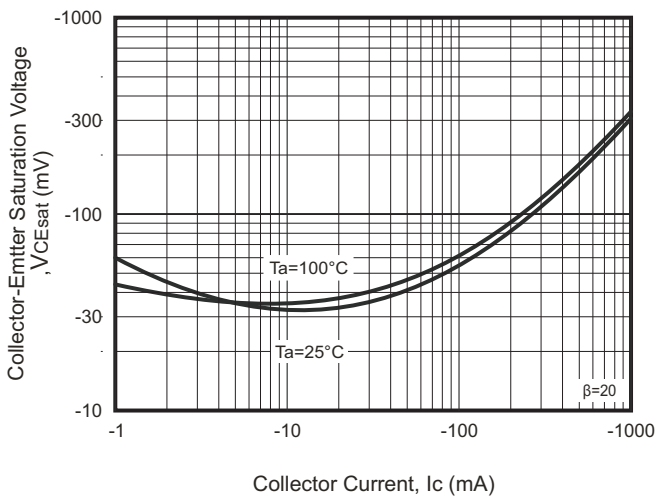


Fig.4 -  $V_{BEsat} - I_c$

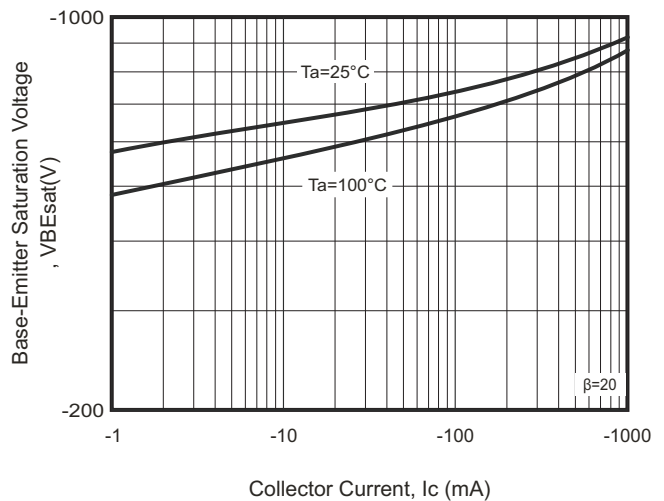


Fig.5 -  $I_c - V_{BE}$

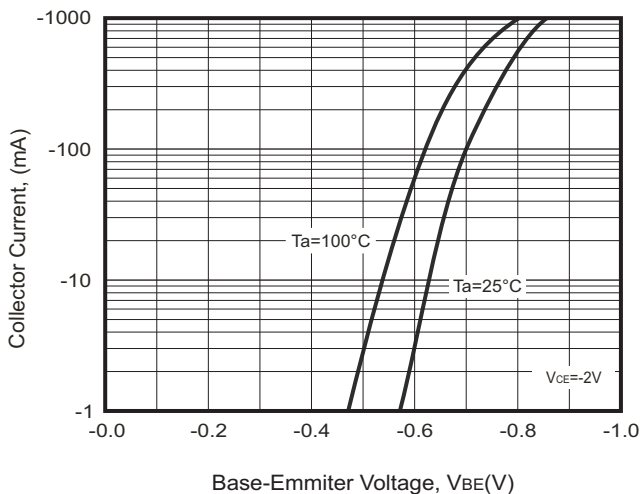
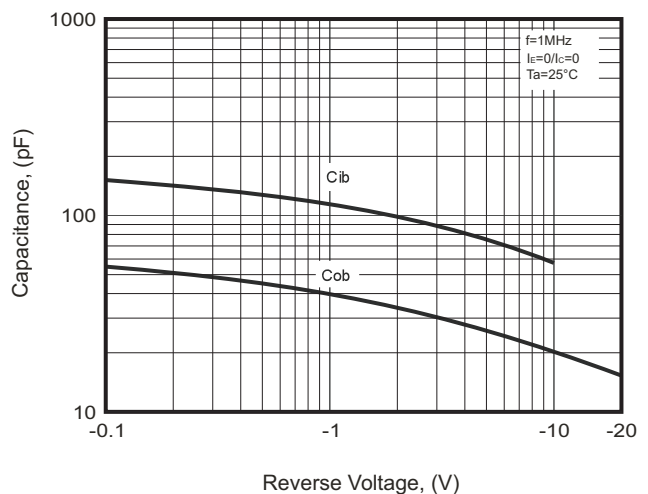
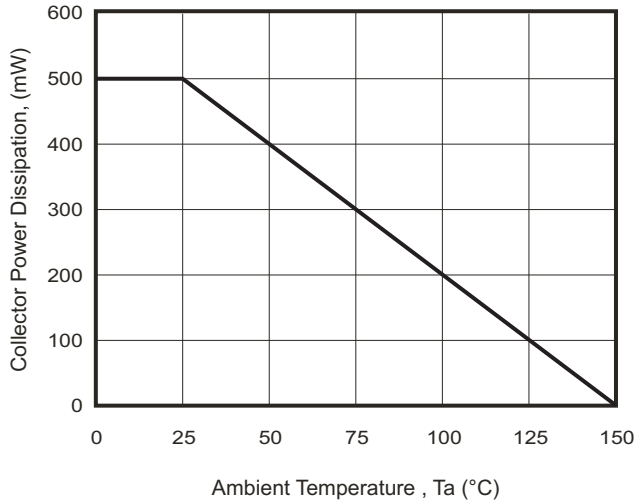


Fig.6 -  $C_{ob}/C_{ib} - V_{CB}/V_{EB}$



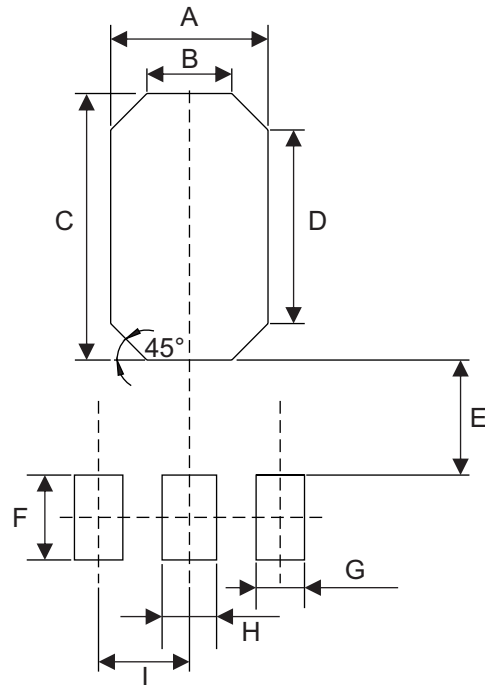
## RATING AND CHARACTERISTIC CURVES (2SA1213-G)

Fig.7 -  $P_c - T_a$



### Suggested PAD Layout

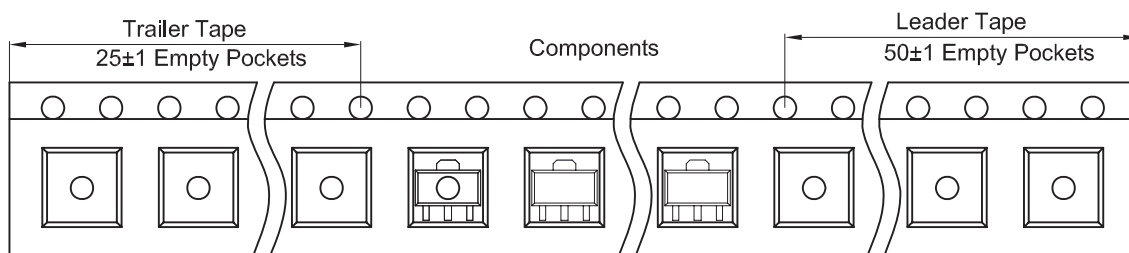
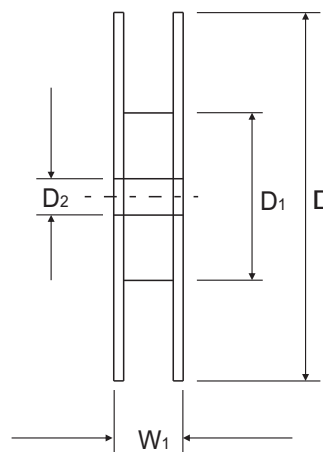
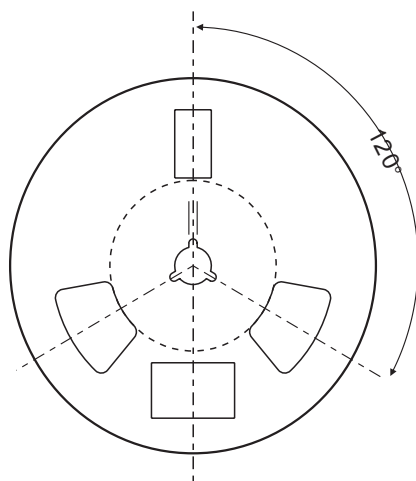
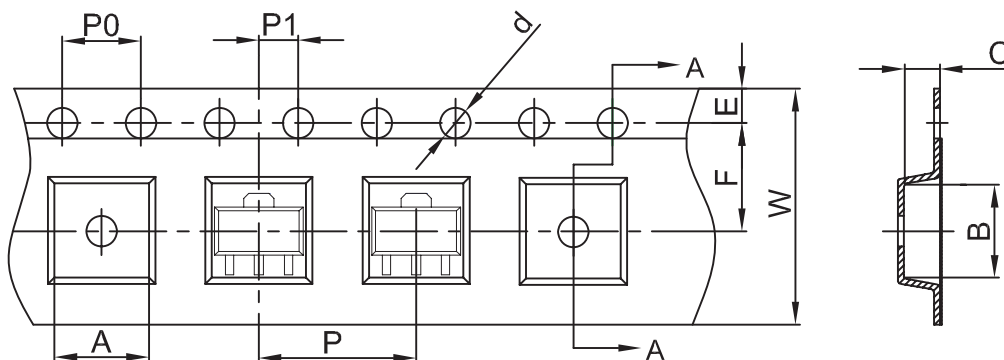
SIZE	SOT-89-3L	
	(mm)	(inch)
A	2.60	0.102
B	1.40	0.055
C	4.40	0.173
D	3.20	0.126
E	1.90	0.075
F	1.40	0.055
G	0.80	0.032
H	0.90	0.035
I	1.50	0.059



### Standard Packaging

Case Type	REEL PACK	
	REEL ( pcs )	Reel Size (inch)
SOT-89-3L	1,000	7

## Reel Taping Specification



SOT-89-3L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	4.85 ± 0.10	4.45 ± 0.10	1.85 ± 0.10	1.50 ± 0.10	180 ± 2.00	60.00 ± 1.00	R32.00 ± 1.00
	(inch)	0.191 ± 0.004	0.175 ± 0.004	0.073 ± 0.004	0.059 ± 0.004	7.087 ± 0.079	2.362 ± 0.039	1.260 ± 0.039

SOT-89-3L	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	12.00 + 0.30 / - 0.10	16.50 ± 1.00
	(inch)	0.069 ± 0.004	0.217 ± 0.004	0.315 ± 0.004	0.158 ± 0.004	0.079 ± 0.004	0.472 + 0.012 / - 0.004	0.650 ± 0.039

Company reserves the right to improve product design , functions and reliability without notice. REV: A