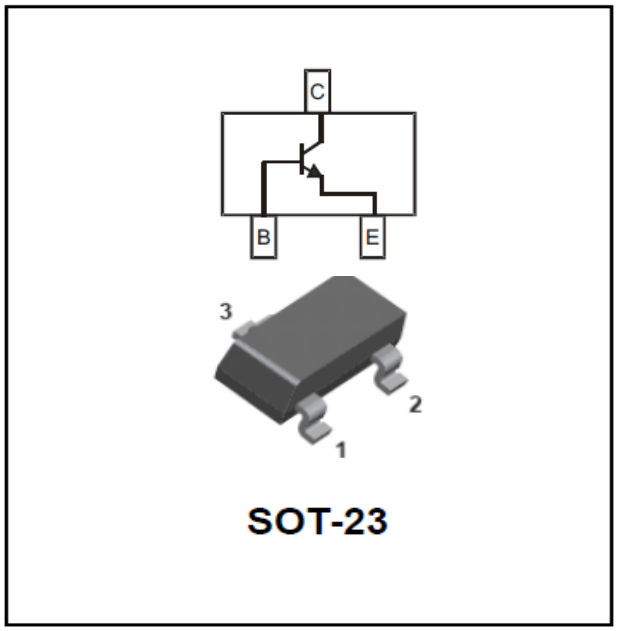
NPN Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: J3

RoHS COMPLIANT

■ Maximum Ratings (Ta=25℃ unless otherwise noted)

Item	Symbol	Unit	Conditions	Value
Collector-Base Voltage	VCBO	V		40
Collector-Emitter Voltage	VCEO	V		25
Emitter-Base Voltage	VEBO	V		5
Collector Current	IC	mA		500
Total Device Dissipation	PC	mW		300
Thermal Resistance Junction to Ambient	RTHJA	℃/W		416
Junction Temperature	Tj	℃		150
Storage Temperature	TSTG	℃		-55 to +150

■ Electrical Characteristics (Ta=25℃ unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=0.1mA,I_E=0	40		
Collector-emitter breakdown voltage	$V_{(BR)CEO*}$	V	I_C =1mA,I_B=0	25		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=0.1mA,I_C=0	5		
Collector cut-off current	I_{CBO}	uA	V_{CB}=40V,I_E=0			0.1
Collector cut-off current	I_{CEO}	uA	V_{CE}=20V, I_B =0			0.1
Emitter cut-off current	I_{EBO}	uA	V_{EB}=5V, I_C =0			0.1
DC current gain	$h_{FE(1)}$	V	V_{CE}=1V,I_C=50mA	120		400
	$h_{FE(2)}$	V	V_{CE}=1V,I_C=500mA	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	I_C=500mA,I_B=50mA			0.6
Base-emitter saturation voltage	$V_{BE(sat)}$	V	I_C=500mA,I_B=50mA			1.2
Transition frequency	f_T	MHz	V_{CE}=6V,I_C=20mA,f=30MHz	150		

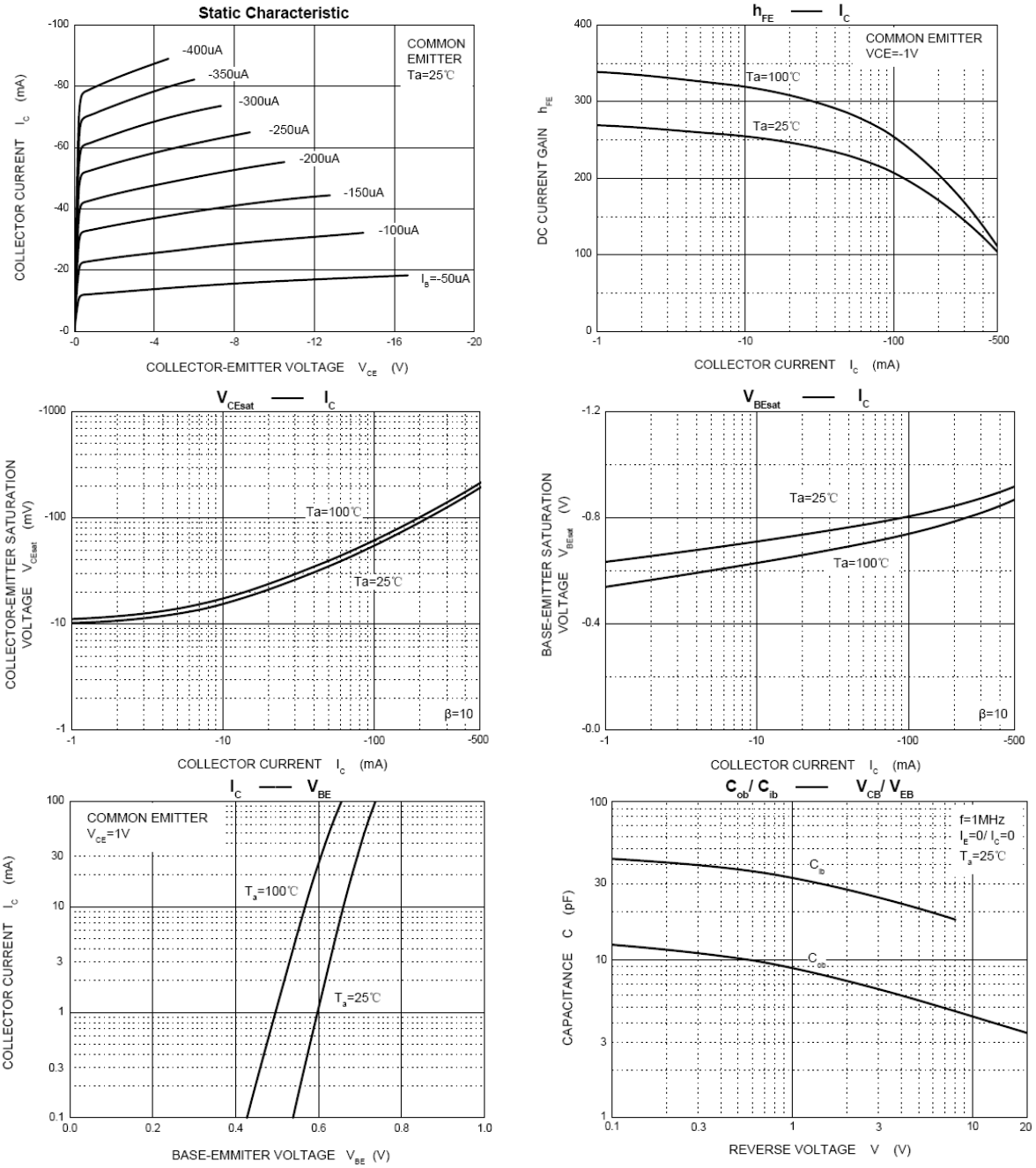
■CLASSIFICATION OF HFE (1)

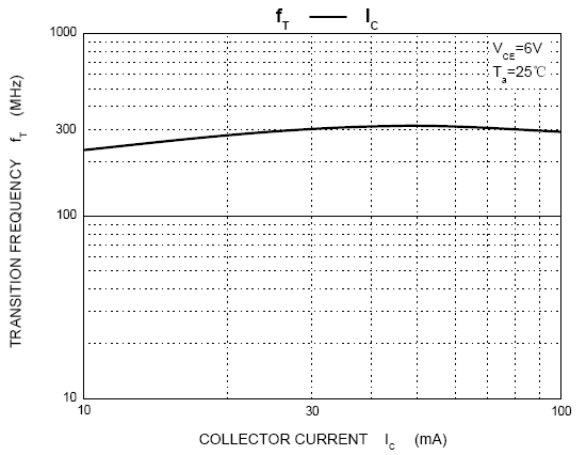
RANK	L	H	J
RANGE	120-200	200-350	300-400

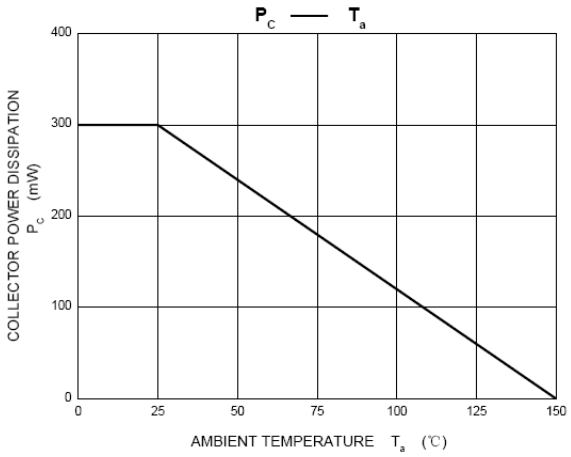
■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
S9013	F2	Approximate 0.008	3000	30000	120000	7” reel

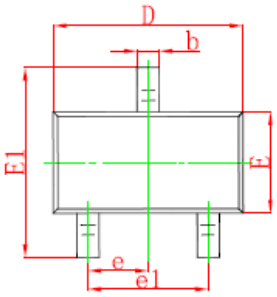
■ Characteristics (Typical)

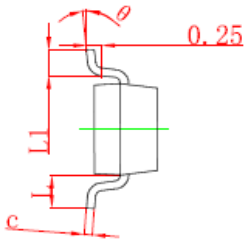


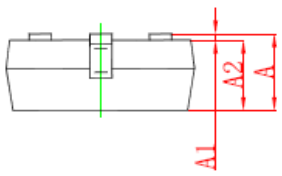




■ SOT-23 Package Outline Dimensions

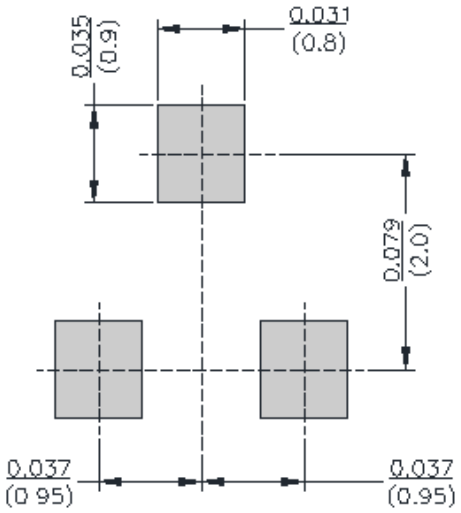






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■ **SOT-23 Suggested Pad Layout**



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