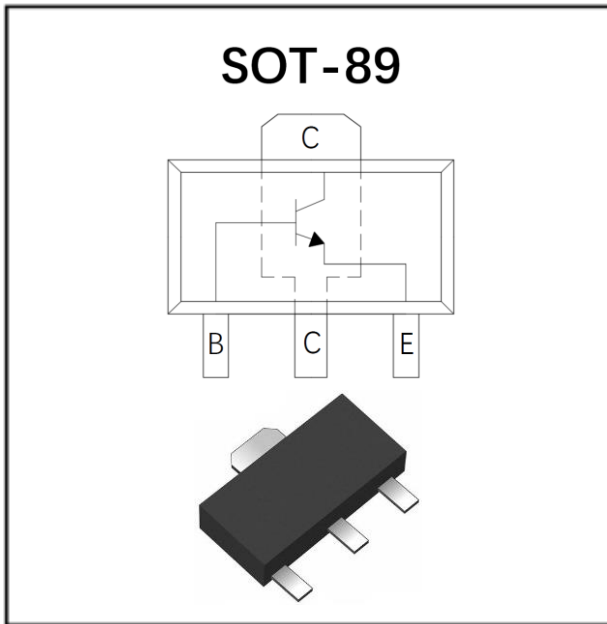


NPN Low VCEsat Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating
- Halogen free available upon request by adding suffix "HF"
- Moisture Sensitivity Level 1
- Low collector-emitter saturation voltage

Mechanical Data

- **Package:** SOT-89
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 1M

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Value
Minimum Collector-Emitter Voltage	V_{CE0}	V	$I_C=2mA, I_B=0$	50
Minimum Collector-Base Voltage	V_{CB0}	V	$I_C=100\mu A, I_E=0$	50
Minimum Emitter-Base Voltage	V_{EB0}	V	$I_E=100\mu A, I_C=0$	5
Collector Current	I_C	A		2
Peak Collector Current	I_{CM}	A	single pulse, $t_P=1ms$	5
Collector Power Dissipation	P_C	mW		550
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	°C/W		225
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	°C/W		185
Operation Junction Temperature	T_j	°C		-55 to +150
Storage Temperature	T_{stg}	°C		-55 to +150

Note: (1) Device mounted on an FR4 PCB, single-sided copper, 35μm copper, tin-plated and standard footprint



YJBS4250X

■Electrical Characteristics (Ta=25°C unless otherwise noted)

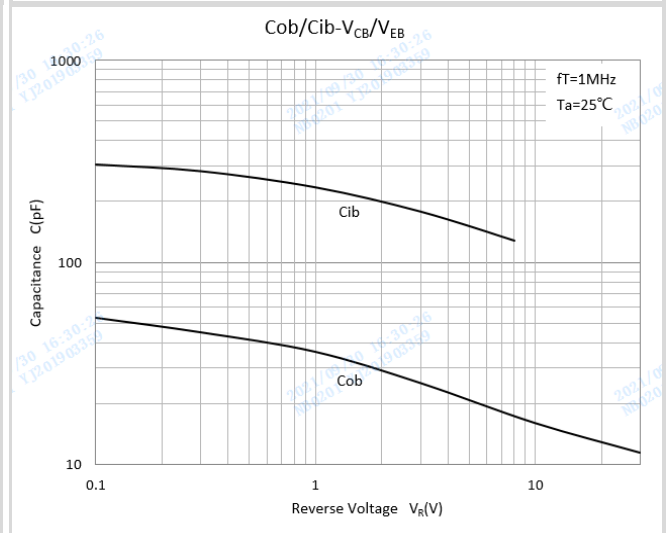
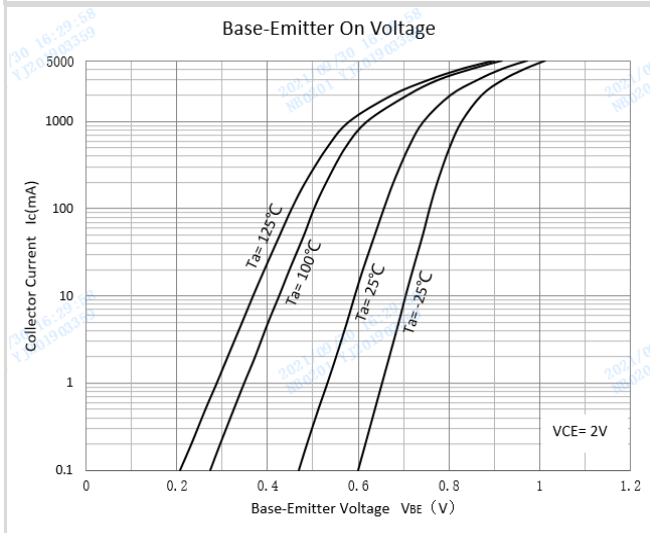
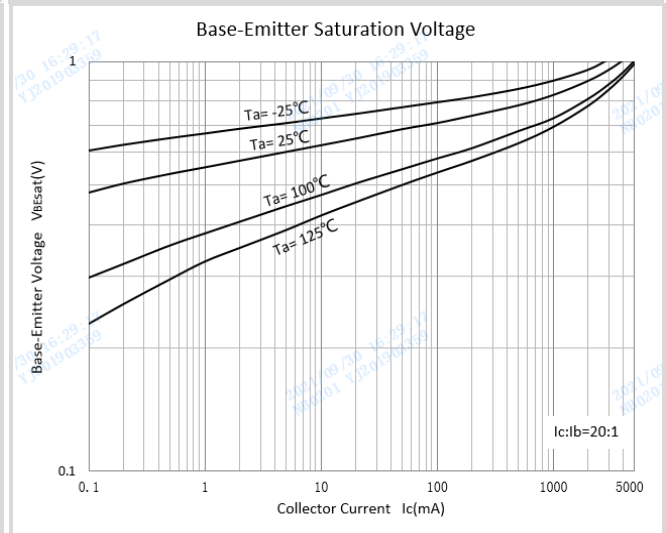
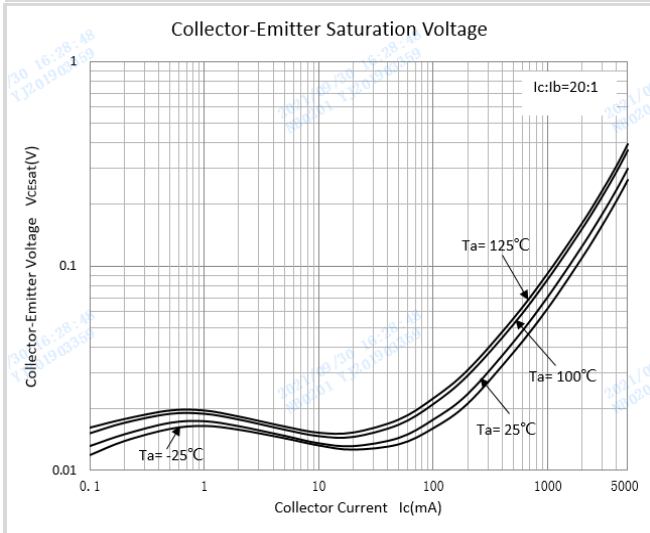
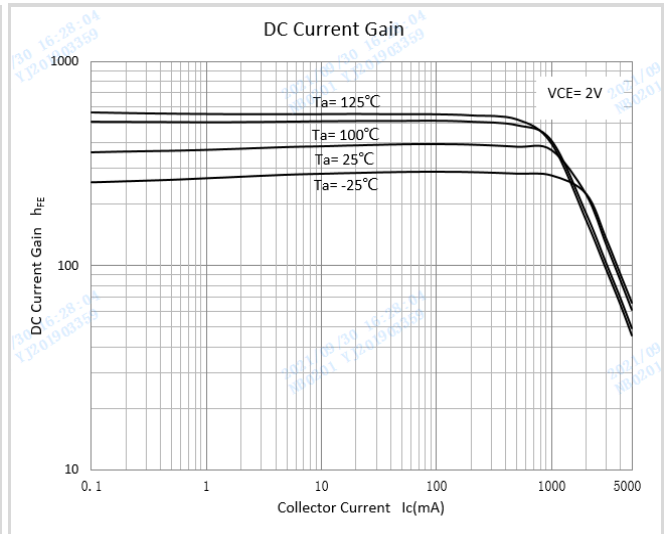
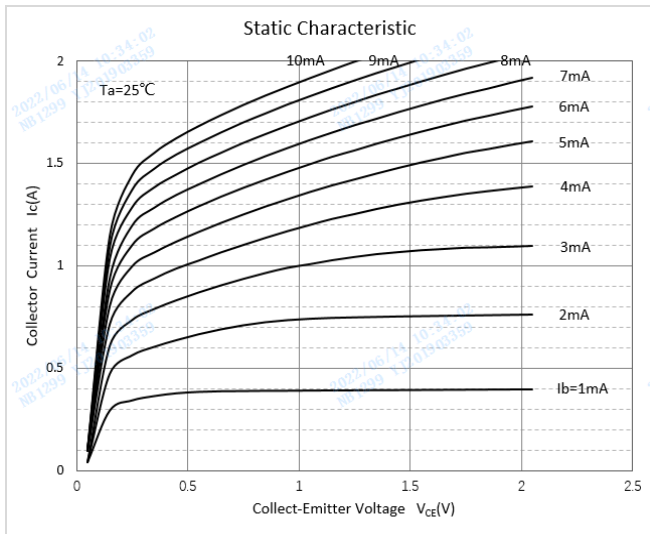
Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-Emitter Voltage	V_{CEO}	V	$I_C=2mA, I_B=0$	50		
Collector-Base Voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	50		
Emitter-Base Voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	5		
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB}=50V$			100
Collector-Emitter cut-off current	I_{CES}	nA	$V_{CE}=50V, V_{BE}=0V$			100
Emitter-Base cut-off current	I_{EBO}	nA	$V_{EB}=5V$			100
DC Current Gain	h_{FE1}		$V_{CE}=2V, I_C=0.1A$	300		
	h_{FE2}		$V_{CE}=2V, I_C=0.5A$	300		
	h_{FE3}		$V_{CE}=2V, I_C=1A$	300		
	h_{FE4}		$V_{CE}=2V, I_C=2A$	150		
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	mV	$I_C=0.5A, I_B=50mA$			90
	$V_{CE(sat)2}$	mV	$I_C=1A, I_B=50mA$			250
	$V_{CE(sat)3}$	mV	$I_C=2A, I_B=100mA$			380
	$V_{CE(sat)4}$	mV	$I_C=2A, I_B=200mA$			320
Equivalent On-resistance	R_{CEsat}	mΩ	$I_C=2A, I_B=200mA$			160
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=2A, I_B=100mA$			1.1
Base-Emitter Turn-on Voltage	$V_{BE(on)}$	V	$V_{CE}=2V, I_C=1A$			1.1
Delay time	t_d	ns	$V_{CC}=10V, I_C=1.5A;$ $I_{B(on)}=0.15A$ $I_{B(off)}=0.15A$		57	
Rise time	t_r	ns			21	
Turn-on time	t_{on}	ns			78	
Storage time	t_s	ns			315	
Fall time	t_f	ns			82	
Turn-off time	t_{off}	ns			397	
Transition Frequency	f_T	MHz	$I_C=100mA, V_{CE}=5V, f=100MHz$	100		
Collector Capacitance	C_{ob}	pF	$V_{CB}=10V, I_E=0A, f=1MHz$			25

■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJBS4250X	F2	Approximate 0.055	1000	8000	32000	7" reel

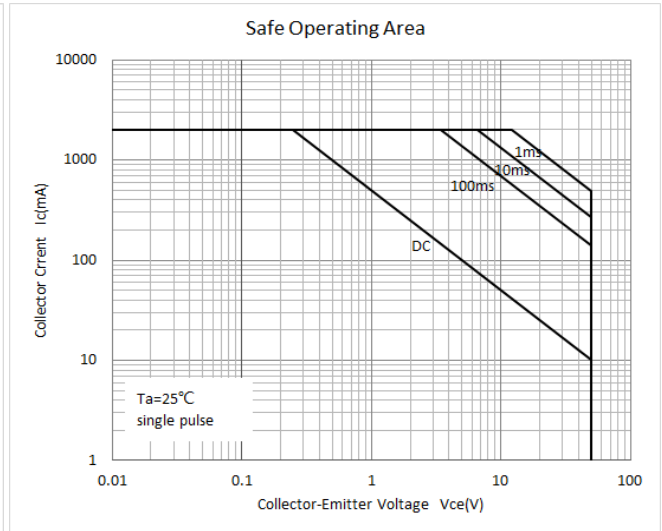
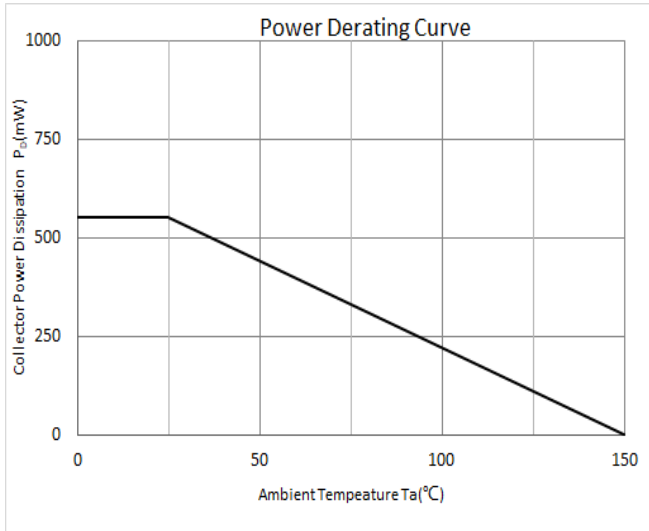


■ Characteristics (Typical)

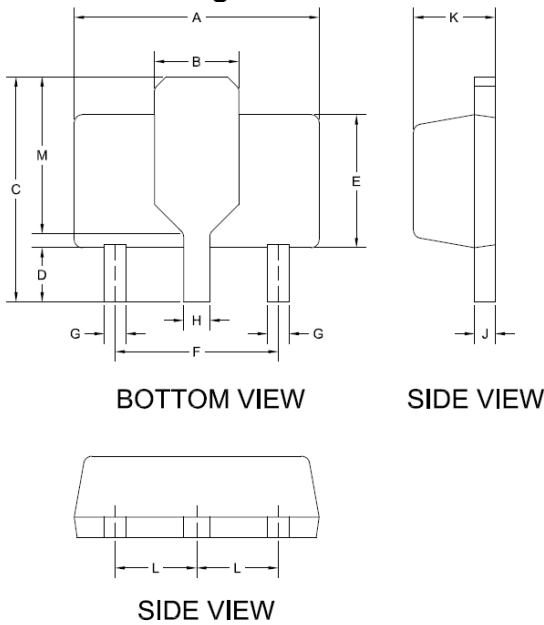




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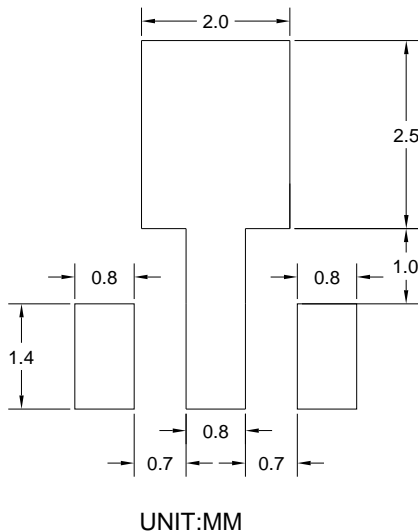


■SOT-89 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	0.173	0.181	4.400	4.600
B	0.061 TYP.		1.550 TYP.	
C	0.155	0.167	3.940	4.250
D	0.031	0.047	0.800	1.200
E	0.094	0.102	2.400	2.600
F	0.118 TYP.		3.00 TYP.	
G	0.014	0.019	0.360	0.480
H	0.017	0.022	0.440	0.560
J	0.014	0.017	0.350	0.440
K	0.055	0.063	1.400	1.600
L	0.059 TYP.		1.500 TYP.	
M	0.108 TYP.		2.750 TYP.	

■SOT-89 Suggested Pad Layout





YJBS4250X

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