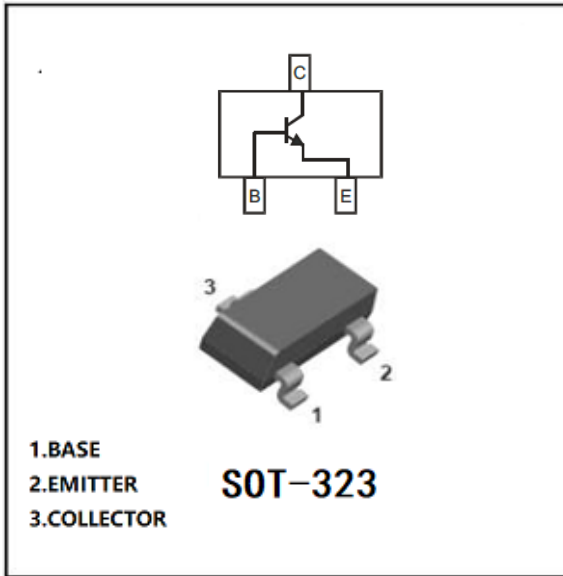


NPN Low VCEsat Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating
- Low collector-emitter saturation voltage VCEsat
- High current capabilities.
- Moisture Sensitivity Level 1

Mechanical Data

- **Package:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 4140U

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

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CEO}	V	$I_C=10mA, I_B=0$	40
Collector-Base Voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	40
Emitter-Base Voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	5
Collector Current	I_C	A		1
Peak Collector Current	I_{CM}	A	$t_p \leq 1 \text{ ms; single pulse}$	2
Power Dissipation	$P_D^{(1)}$	mW		250
Thermal resistance, junction-to-ambient	$R_{\theta JA}^{(1)}$	°C/W		500
Thermal resistance, junction-to-case	$R_{\theta JC}^{(1)}$	°C/W		400
Operation Junction Temperature	T_j	°C		-55 to +150
Storage Temperature	T_{stg}	°C		-55 to +150

Note: (1) Device mounted on an FR4 Printed-Circuit Board (PCB), 35 μ m single-sided copper, tin-plated and standard footprint



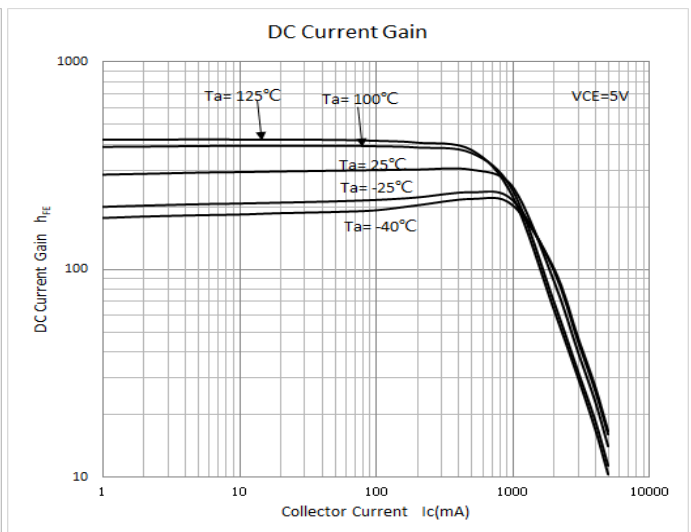
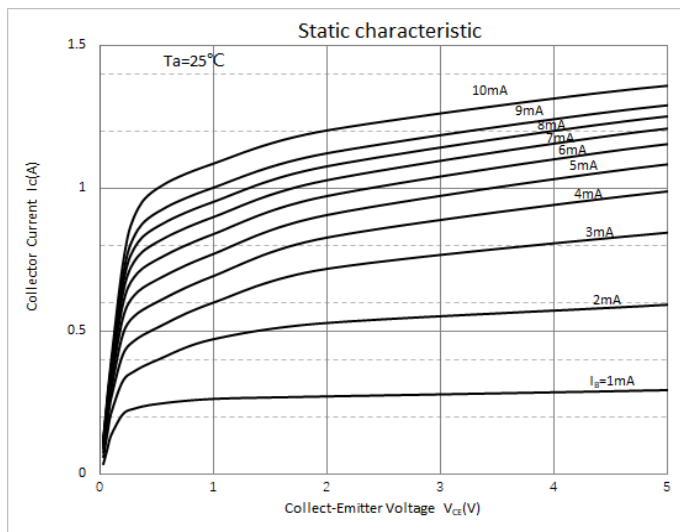
■Electrical Characteristics (Ta=25°C unless otherwise noted)

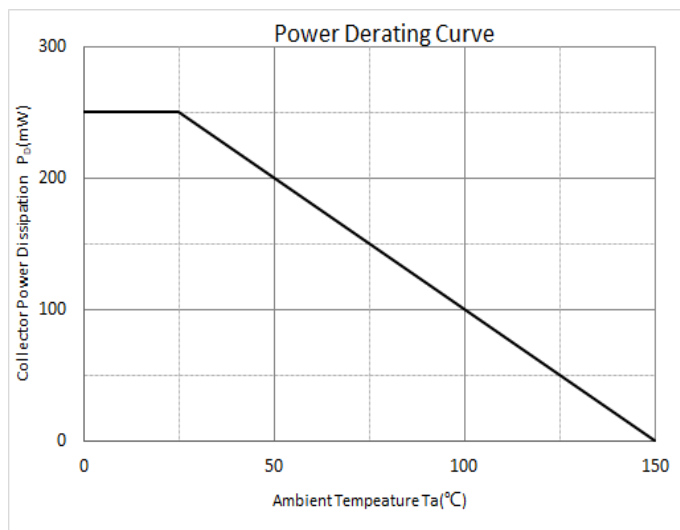
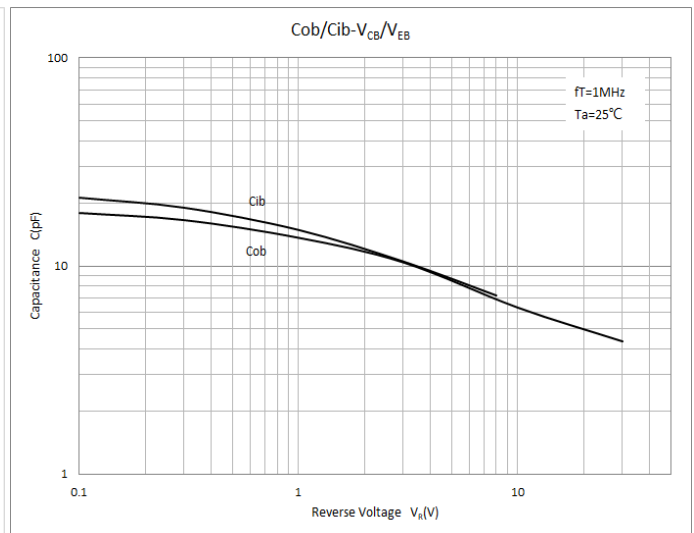
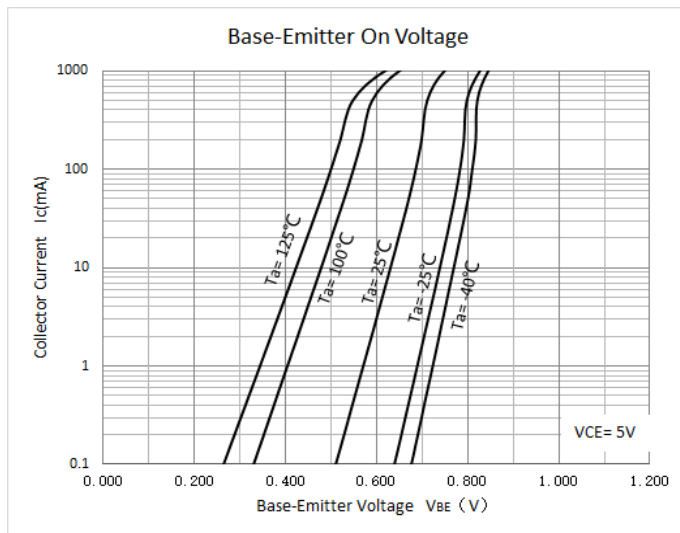
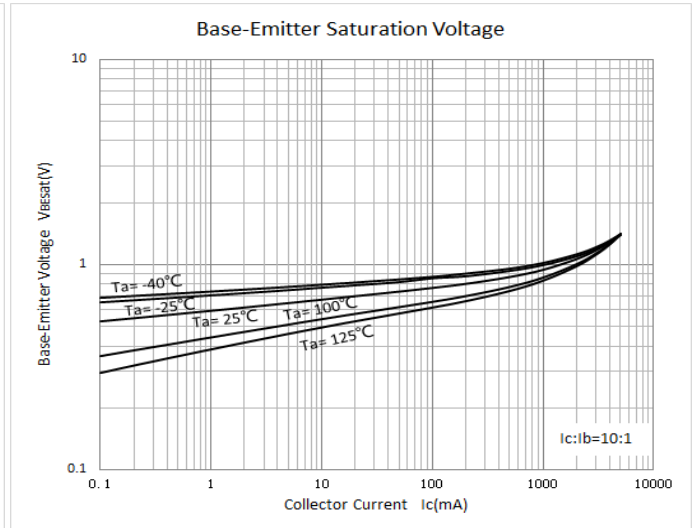
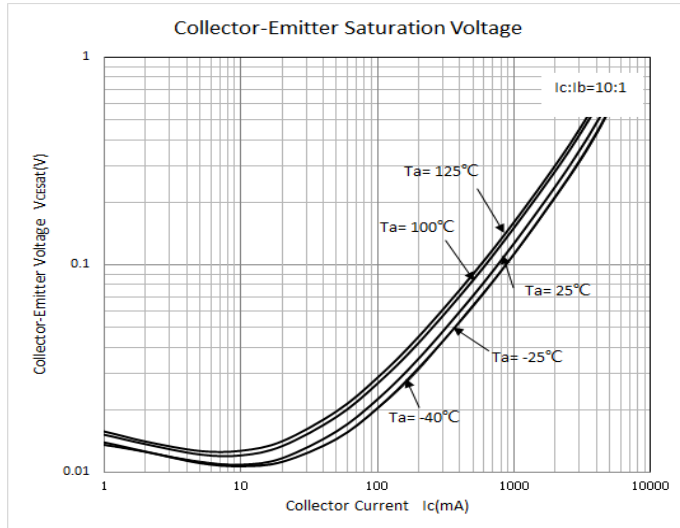
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	40		
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C=10mA, I_B=0$	40		
Emitter-base breakdown voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	5		
Collector-base cut-off current	I_{CBO}	nA	$V_{CB}=40V, I_E=0$			100
Collector-emitter cut-off current	I_{CEO}	nA	$V_{CB}=30V, I_E=0$			100
Emitter-base cut-off current	I_{EBO}	nA	$V_{EB}=5V, I_C=0$			100
DC current gain	$h_{FE} 1$		$V_{CE}=5V, I_C=1mA$	300		
	$h_{FE} 2$		$V_{CE}=5V, I_C=0.5A$	300		900
	$h_{FE} 3$		$V_{CE}=5V, I_C=1A$	200		
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	$I_C=100mA, I_B=1mA$			200
			$I_C=500mA, I_B=50mA$			250
			$I_C=1A, I_B=100mA$			500
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=1A, I_B=100mA$			1.2
Collector-emitter saturation resistance	$R_{CE(sat)}$	m Ω	$I_C=500mA, I_B=50mA$			500
Base-emitter turn on voltage	$V_{BE(on)}$	V	$V_{CE}=5V, I_C=1A$			1.1
Output Capacitance	C_{ob}	pF	$V_{CB}=10V, I_E=0, f=1MHz$		7	

■Ordering Information (Example)

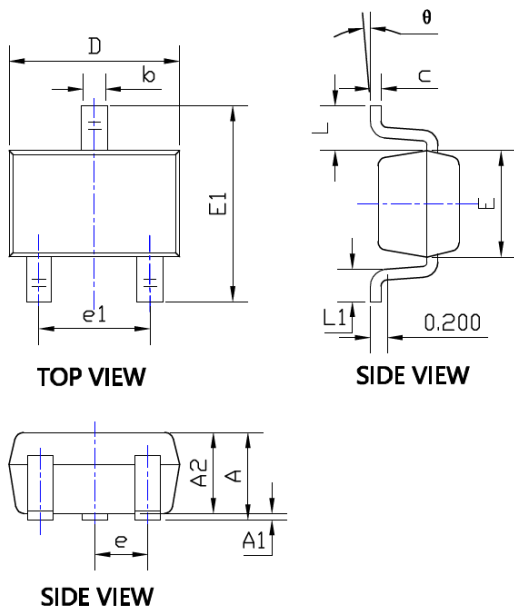
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJBS4140U	F2	Approximate 0.005	3000	30000	120000	7" reel

■Thermal Characteristics (Typical)



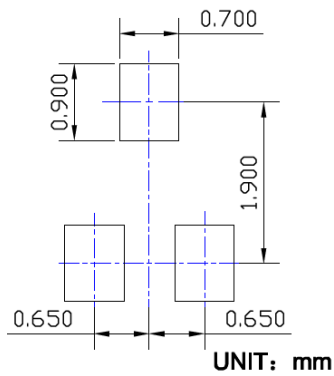


■SOT323 Package Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.016	0.150	0.400
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026 TYP		0.650 TYP	
e1	0.047	0.055	1.200	1.400
L	0.021 REF		0.525 REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

■SOT323 Suggested Pad Layout





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