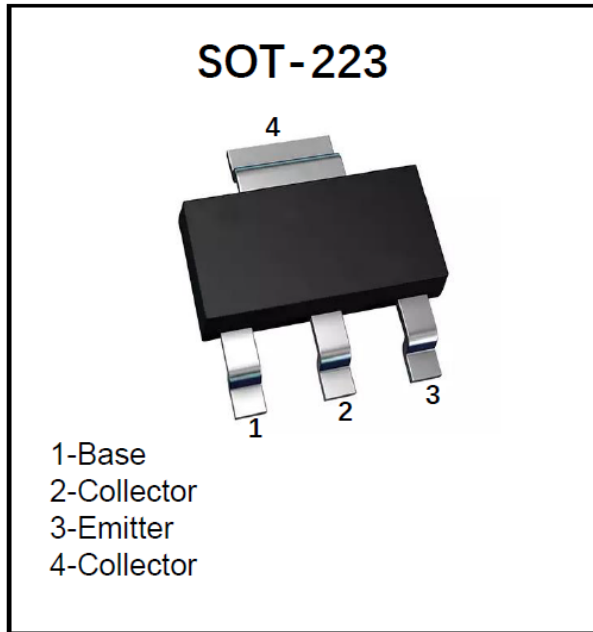


NPN Low VCEsat Transistor



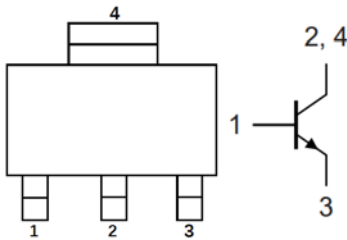
Features

- Epoxy meets UL-94 V-0 flammability rating
- Low collector-emitter saturation voltage VCEsat
- High energy efficiency due to less heat generation
- Moisture Sensitivity Level 1

Mechanical Data

- **Package:** SOT-223
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 4540Z

Equivalent circuit



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

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CE0}	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	$I_E=100\mu A, I_C=0$	6
Collector Current	I_C	A		5
Peak Collector Current	I_{CM}	A	$t_p \leq 1 \text{ ms}$; single pulse	10
Power Dissipation	$P_D^{(1)}$	W		0.65
	$P_D^{(2)}$			1.35
Thermal resistance, junction-to-ambient	$R_{\theta JA}^{(1)}$	°C/W		192
	$R_{\theta JA}^{(2)}$			125
Thermal resistance, junction-to-case	$R_{\theta JC}^{(1)}$	°C/W		153
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 μm single-sided copper, tin-plated and standard footprint

(2) Device mounted on an FR4 Printed-Circuit Board (PCB), 35 μm single-sided copper, tin-plated and mounting pad for collector 1 cm^2 .



YJBS4540Z

RoHS
COMPLIANT

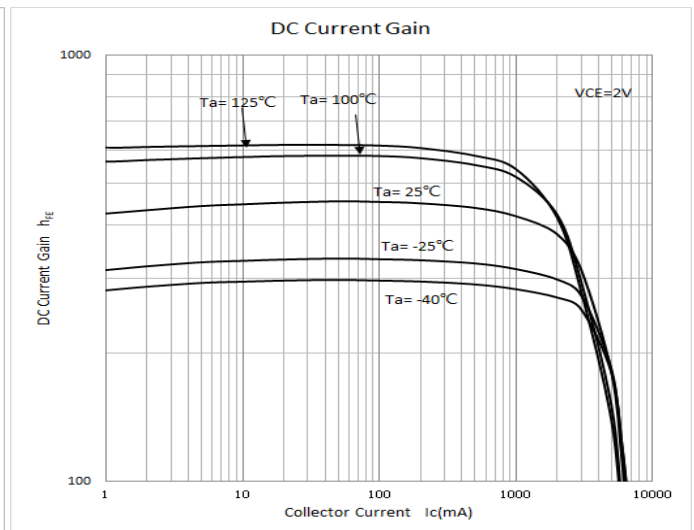
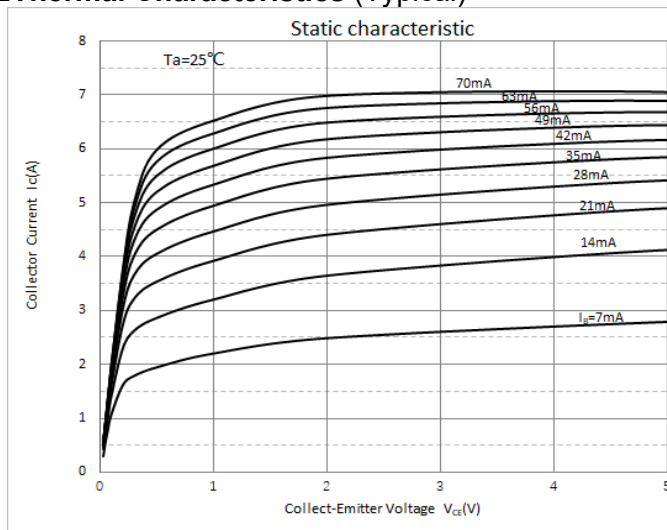
■Electrical Characteristics (Ta=25°C unless otherwise noted)

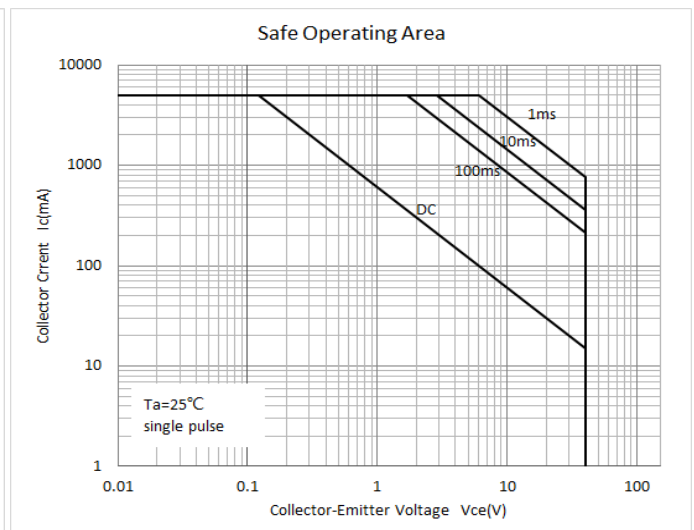
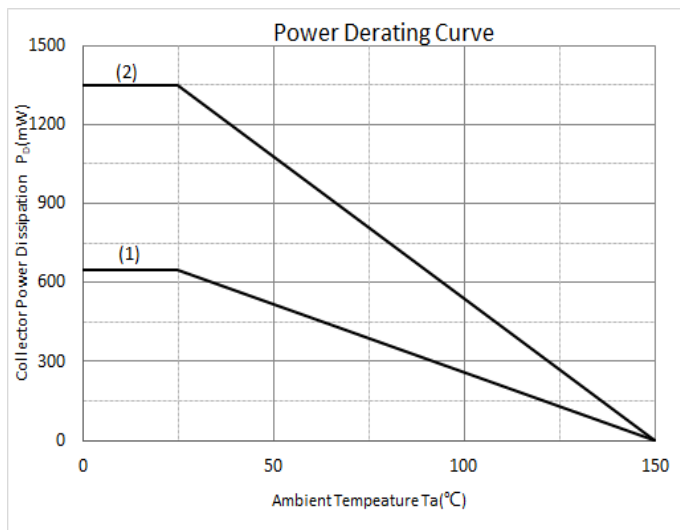
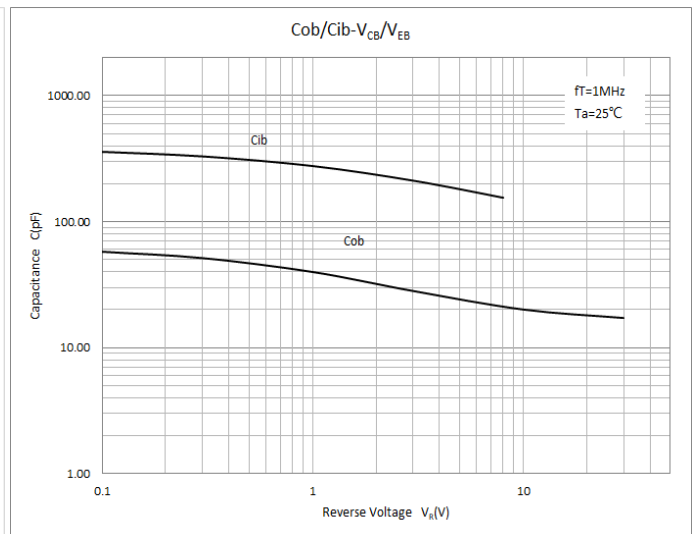
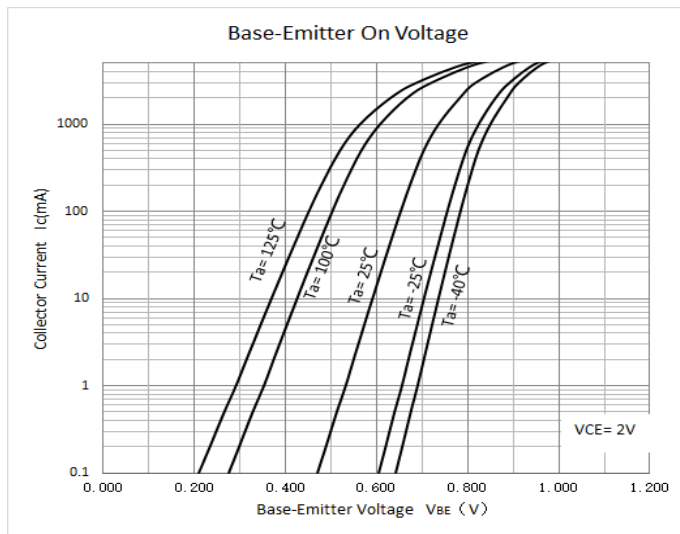
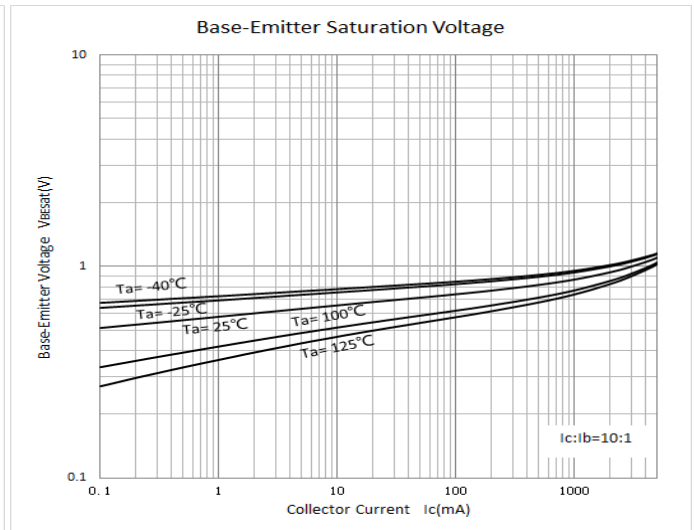
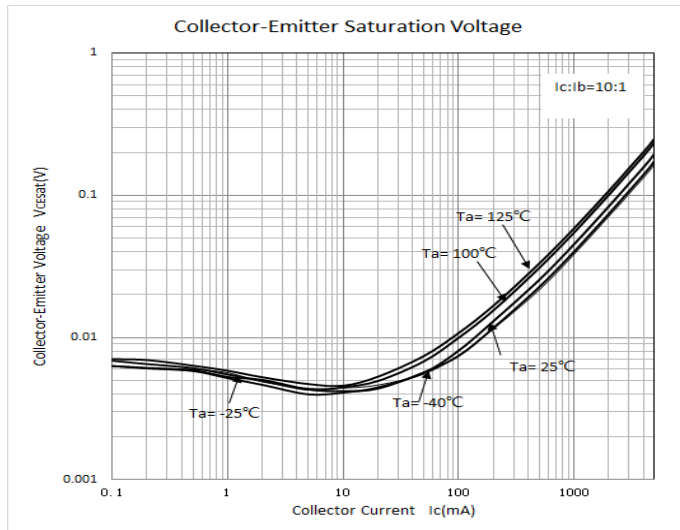
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	40		
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C=10mA, I_B=0$	40		
Emitter-base breakdown voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	6		
Collector-base cut-off current	I_{CBO}	nA	$V_{CB}=30V, I_E=0$			100
Emitter-base cut-off current	I_{EBO}	nA	$V_{EB}=5V, I_C=0$			100
DC current gain	$h_{FE} 1$		$V_{CE}=2V, I_C=500mA$	300		
	$h_{FE} 2$		$V_{CE}=2V, I_C=1A$	300		
	$h_{FE} 3$		$V_{CE}=2V, I_C=2A$	250		
	$h_{FE} 4$		$V_{CE}=2V, I_C=5A$	100		
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	$I_C=500mA, I_B=5mA$			90
			$I_C=1A, I_B=10mA$			120
			$I_C=2A, I_B=200mA$			150
			$I_C=5A, I_B=500mA$			355
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=5A, I_B=500mA$			1.3
Collector-emitter saturation resistance	$R_{CE(sat)}$	m Ω	$I_C=5A, I_B=500mA$			71
Base-emitter turn on voltage	$V_{BE(on)}$	V	$V_{CE}=2V, I_C=2A$			1.1
Output Capacitance	C_{ob}	pF	$V_{CB}=10V, I_E=0, f=1MHz$		25	

■Ordering Information (Example)

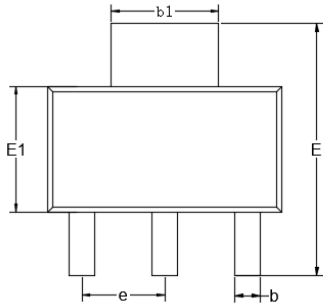
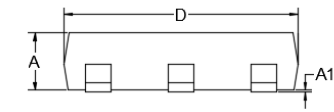
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJBS4540Z	F2	Approximate 0.11	2500	5000	25000	13" reel

■Thermal Characteristics (Typical)



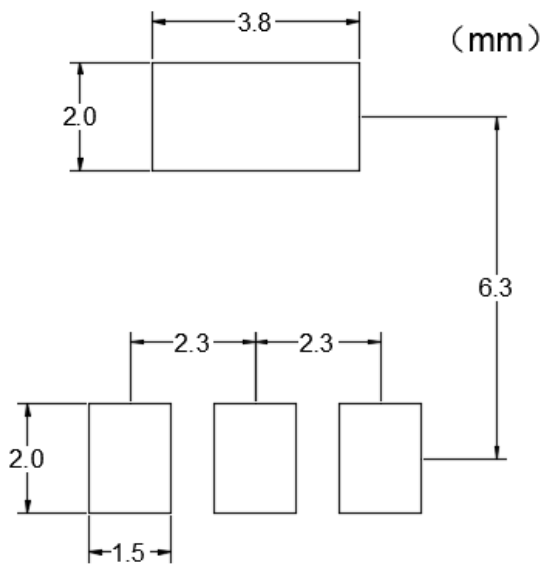


■SOT223 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.0591	0.0670	1.5000	1.7000
A1	0.0008	0.0039	0.0200	0.1000
b	0.0259	0.0330	0.6600	0.8400
b1	0.1140	0.1220	2.9000	3.1000
c	0.0090	0.0138	0.2300	0.3500
D	0.2480	0.2640	6.3000	6.7000
E	0.2637	0.2874	6.7000	7.3000
E1	0.1290	0.1460	3.3000	3.7000
e	0.0866	0.0945	2.2000	2.4000
L	0.0295	0.0492	0.7500	1.2500
θ	0°	10°	0°	10°

■SOT223 Suggested Pad Layout





Disclaimer

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