

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

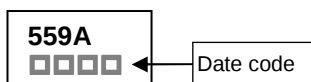
DESCRIPTION

The PZT559A is designed for general purpose switching and amplifier applications.

FEATURES

- 4 Amps continuous current, up to 10 Amps peak current.
- Excellent gain characteristic specified up to 3 Amps
- Very low saturation voltages

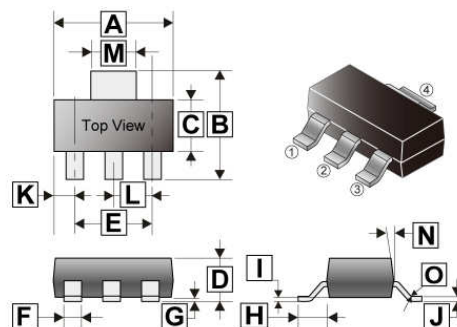
MARKING



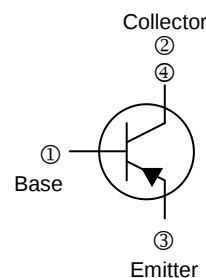
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13' inch

SOT-223



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.30	6.70	G	0.02	0.10
B	6.70	7.30	H	1.50	2.00
C	3.30	3.70	J	0.25	0.35
D	1.42	1.90	K	0.85	1.05
E	4.60 REF.		L	2.30 REF.	
F	0.60	0.80	M	2.90	3.10
I	0.02	0.10	N	13 TYP.	
O	0°	10°			



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V_{CBO}	-180	V
Collector to Emitter Voltage	V_{CEO}	-140	V
Emitter to Base Voltage	V_{EBO}	-7	V
Collector Current (DC)	I_C	-4	A
Collector Current (Pulse)	I_{CM}	-10	A
Total Power Dissipation ¹	P_D	3	W
Total Power Dissipation ²		1.6	W
Junction, Storage Temperature	T_J, T_{STG}	+150, -55~150	$^\circ\text{C}$

Notes :

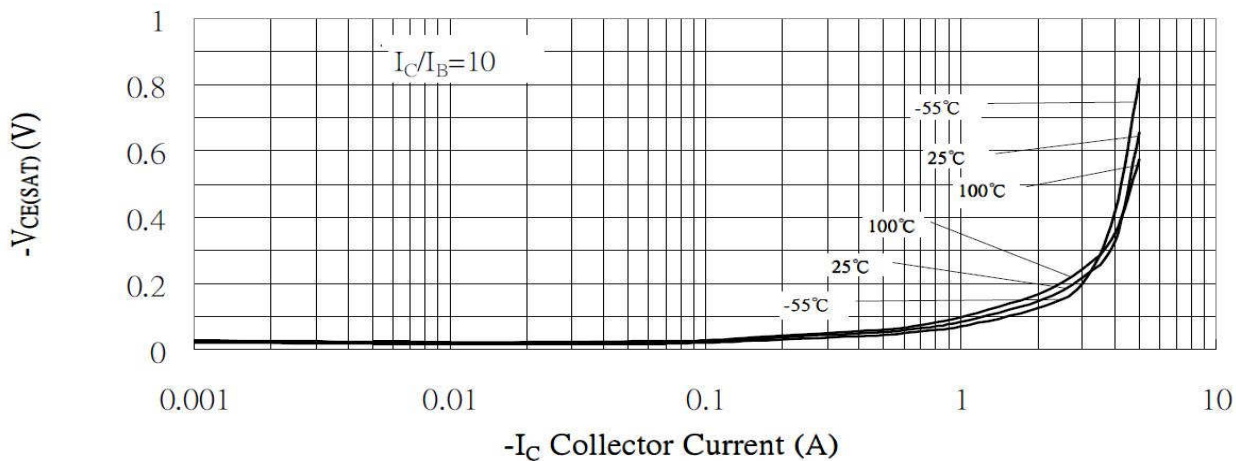
1. Surface mounted on 52mm x 52mm x 1.6mm copper pad of FR4 board.
2. Surface mounted on 25mm x 25mm x 1.6mm copper pad of FR4 board.

ELECTRICAL CHARACTERISTICS ($T_A=25\text{ }^{\circ}\text{C}$ unless otherwise specified)

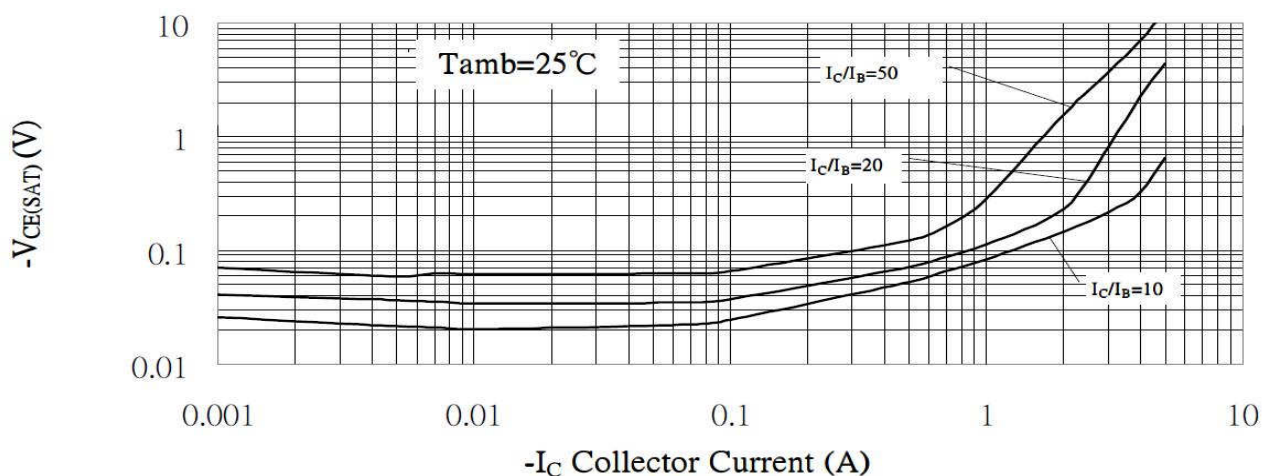
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector - Base Breakdown Voltage	BV_{CBO}	-180	-	-	V	$I_C = -100\mu\text{A}$, $I_E = 0$
Increased Operating Voltage	BV_{CER}	-180	-	-	V	$I_C = -1\mu\text{A}$, $R_B \leq 1\text{K}\Omega$
Collector - Emitter Breakdown Voltage	BV_{CEO}	-140	-	-	V	$I_C = -10\text{mA}$, $I_B = 0$
Emitter - Base Breakdown Voltage	BV_{EBO}	-7	-	-	V	$I_E = -100\mu\text{A}$, $I_C = 0$
Collector Cut - Off Current	I_{CBO}	-	-	-20	nA	$V_{CB} = -150\text{V}$, $I_E = 0$
	I_{CER}	-	-	-20	nA	$V_{CB} = -150\text{V}$, $R \leq 1\text{K}\Omega$
Emitter Cut - Off Current	I_{EBO}	-	-	-10	nA	$V_{EB} = -6\text{V}$, $I_C = 0$
Collector - Emitter Saturation Voltage	$V_{CE(sat)1}$	-	-40	-60	mV	$I_C = -100\text{mA}$, $I_B = -5\text{mA}$
	$V_{CE(sat)2}$	-	-55	-80	mV	$I_C = -500\text{mA}$, $I_B = -50\text{mA}$
	$V_{CE(sat)3}$	-	-85	-120	mV	$I_C = -1\text{A}$, $I_B = -100\text{mA}$
	$V_{CE(sat)4}$	-	-250	-360	mV	$I_C = -3\text{A}$, $I_B = -300\text{mA}$
Base - Emitter Voltage	$V_{BE(sat)}$	-	-940	-1.04	V	$I_C = -3\text{A}$, $I_B = -300\text{mA}$
	$V_{BE(on)}$	-	-830	-0.93	V	$V_{CE} = -5\text{V}$, $I_C = -3\text{A}$
DC Current Gain	$*h_{FE1}$	100	225	-		$V_{CE} = -5\text{V}$, $I_C = -10\text{mA}$
	$*h_{FE2}$	100	200	300		$V_{CE} = -5\text{V}$, $I_C = -1\text{A}$
	$*h_{FE3}$	45	80	-		$V_{CE} = -5\text{V}$, $I_C = -3\text{A}$
	$*h_{FE4}$	-	5	-		$V_{CE} = -5\text{V}$, $I_C = -10\text{A}$
Transition Frequency	f_T	-	120	-	MHz	$V_{CE} = -10\text{V}$, $I_C = -100\text{mA}$, $f = 50\text{MHz}$
Collector Output Capacitance	C_{OB}	-	33	-	pF	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$
Switching Time	Turn-on	T_{on}	-	42	nS	$V_{CC} = -50\text{V}$, $I_C = -1\text{A}$, $I_{B1} = -I_{B2} = -100\text{mA}$
	Turn-off	T_{off}	-	636		

*Measured under pulsed condition. Pulse width = 300 μs , Duty cycle $\leq 2\%$

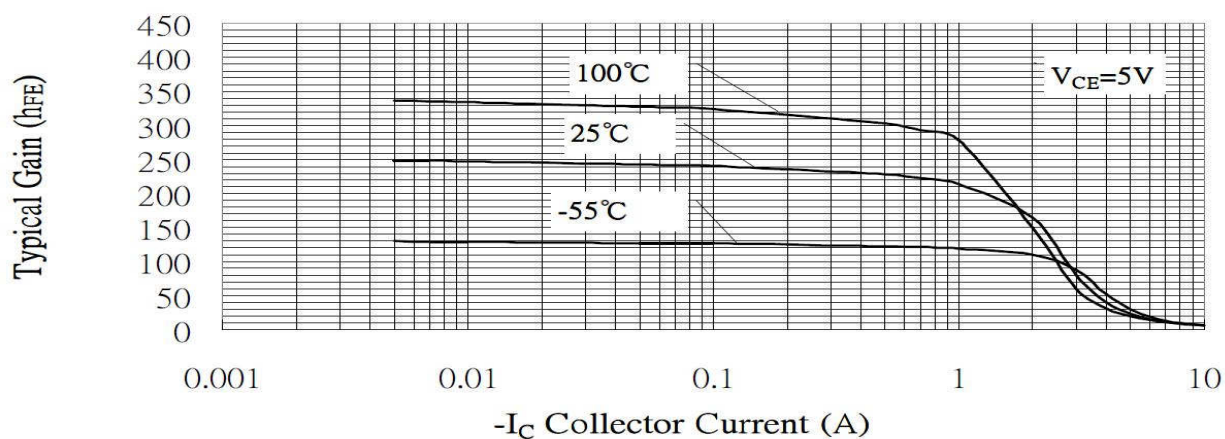
CHARACTERISTIC CURVES



$V_{CE(SAT)} \propto I_C$

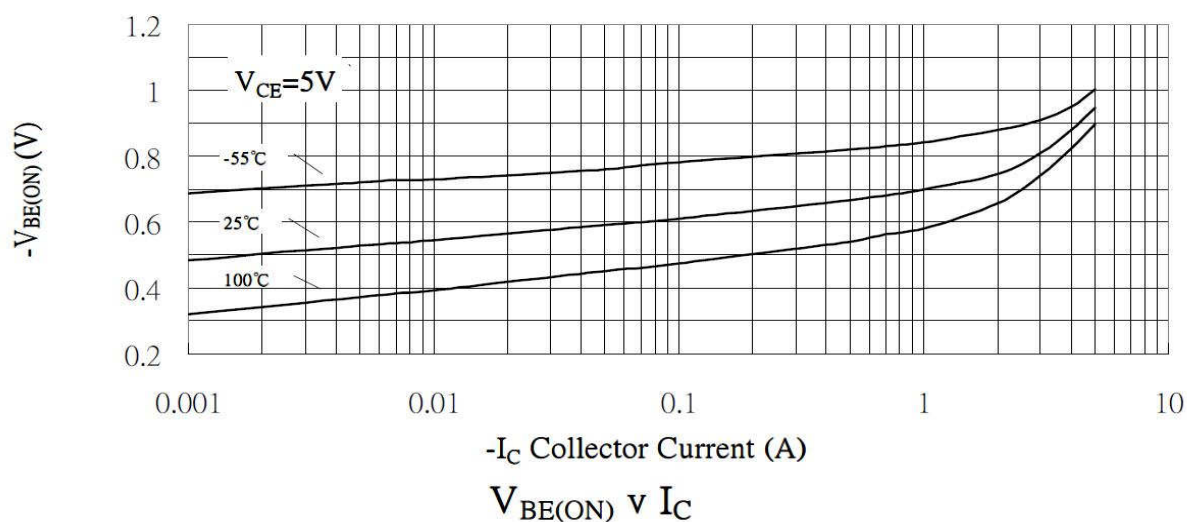
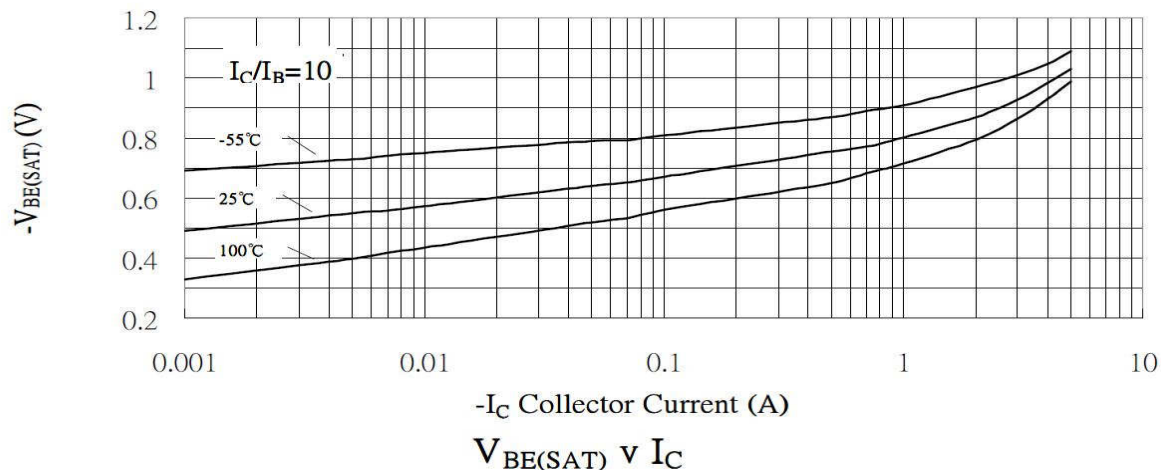


$V_{CE(SAT)} \propto I_C$



$h_{FE} \propto I_C$

CHARACTERISTIC CURVES



Safe Operating Area

