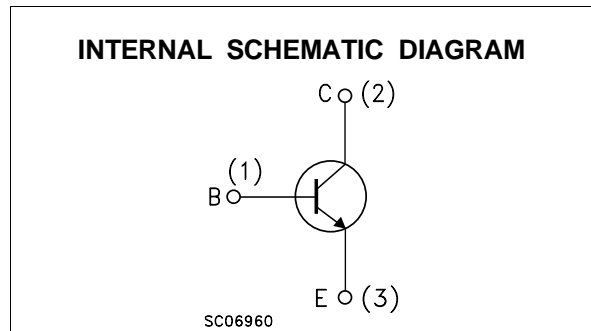
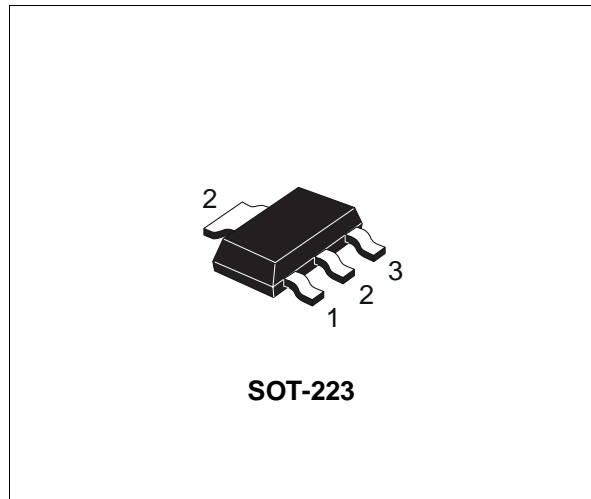


**MEDIUM POWER AMPLIFIER**

**ADVANCE DATA**

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- GENERAL PURPOSE MAINLY INTENDED FOR USE IN MEDIUM POWER INDUSTRIAL APPLICATION AND FOR AUDIO AMPLIFIER OUTPUT STAGE
- PNP COMPLEMENTS ARE STZT2907 AND STZT2907A RESPECTIVELY



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value		Unit
		STZT2222	STZT2222A	
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)	60	75	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	30	40	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)	5	6	V
I <sub>C</sub>	Collector Current	0.8		A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> = 25 °C	1.5		W
T <sub>stg</sub>	Storage Temperature	-65 to 150		°C
T <sub>j</sub>	Max. Operating Junction Temperature	150		°C

## STZT2222/STZT2222A

### THERMAL DATA

$R_{thj-amb}$	Thermal Resistance Junction-Ambient	Max	83.3	$^{\circ}\text{C}/\text{W}$
$R_{thj-tab}$	Thermal Resistance Junction-Collector Tab	Max	10	$^{\circ}\text{C}/\text{W}$

• Mounted on a ceramic substrate area = 30 x 35 x 0.7 mm

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = \text{rated } V_{CBO}$ $V_{CB} = \text{rated } V_{CBO} \quad T_{amb} = 125^{\circ}\text{C}$			10 10	nA $\mu\text{A}$
$I_{CEX}$	Collector Cut-off Current ( $V_{BE} = -3\text{V}$ )	$V_{CE} = 60\text{ V}$ for <b>STZT2222A</b>			10	nA
$I_{BEX}$	Base Cut-off Current ( $V_{BE} = -3\text{V}$ )	$V_{CE} = 60\text{ V}$ for <b>STZT2222A</b>			20	nA
$I_{EBO}$	Emitter Cut-off Current ( $I_E = 0$ )	$V_{EB} = 3\text{ V}$ for <b>STZT2222</b> for <b>STZT2222A</b>			30 15	nA nA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_E = 0$ )	$I_C = 10\ \mu\text{A}$ for <b>STZT2222</b> for <b>STZT2222A</b>	60 75			V V
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 10\text{ mA}$ for <b>STZT2222</b> for <b>STZT2222A</b>	30 40			V V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_C = 0$ )	$I_E = 10\ \mu\text{A}$ for <b>STZT2222</b> for <b>STZT2222</b>	5 6			V V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 150\text{ mA} \quad I_B = 15\text{ mA}$ for <b>STZT2222</b> for <b>STZT2222A</b> $I_C = 500\text{ mA} \quad I_B = 50\text{ mA}$ for <b>STZT2222</b> for <b>STZT2222A</b>			0.4 0.3 1.6 1	V V V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 150\text{ mA} \quad I_B = 15\text{ mA}$ for <b>STZT2222</b> for <b>STZT2222A</b> $I_C = 500\text{ mA} \quad I_B = 50\text{ mA}$ for <b>STZT2222</b> for <b>STZT2222A</b>		0.6	1.3 1.2 2.6 2	V V V V
$h_{FE}^*$	DC Current Gain	$I_C = 0.1\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 1\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA} \quad V_{CE} = 1\text{ V}$ $I_C = 500\text{ mA} \quad V_{CE} = 10\text{ V}$ for <b>STZT2222</b> for <b>STZT2222A</b> $I_C = 10\text{ mA} \quad V_{CE} = 10\text{ V} \quad T_c = -55^{\circ}\text{C}$ for <b>STZT2222</b>	35 50 75 100 50 30 40 35		300	

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

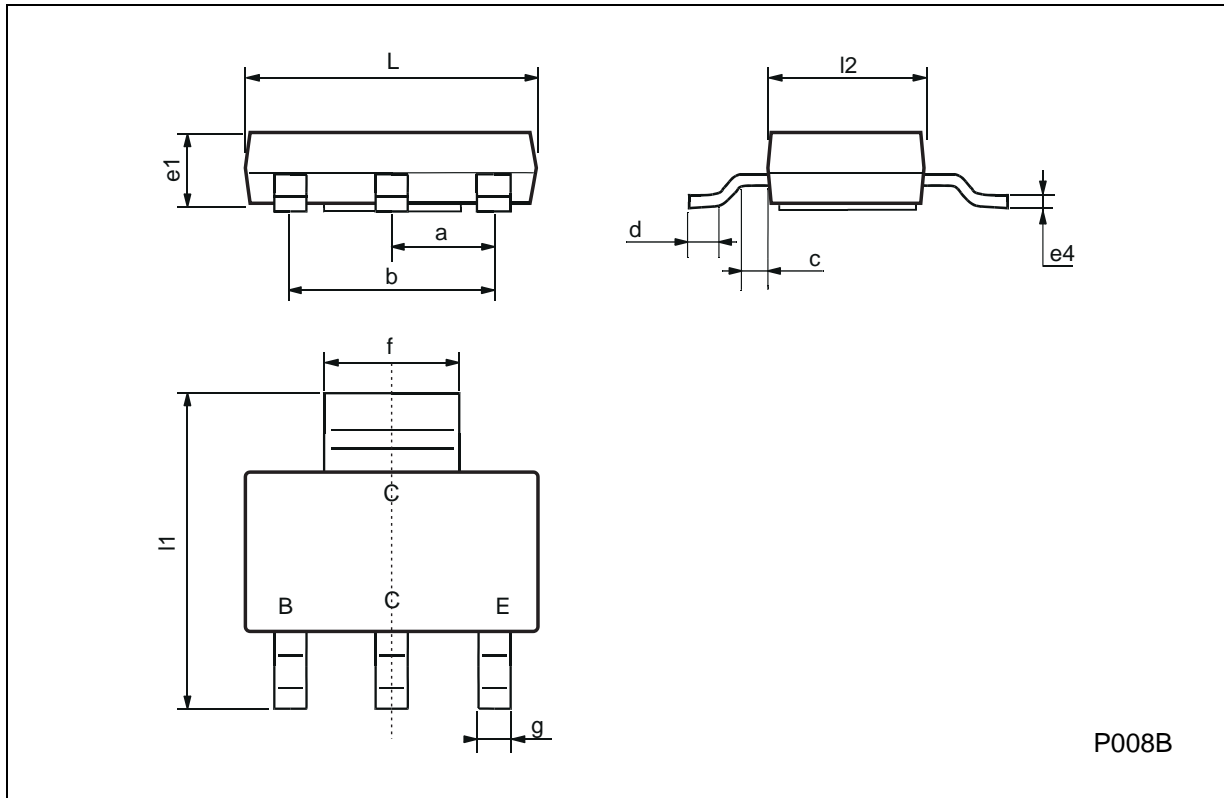
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$h_{fe}$ **	Small Signal Current Gain	$I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$	50 75		300 375	$K\Omega$
$h_{ie}$ **	Input Impedance	$I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$	2 0.25		8 1.25	
$h_{re}$ **	Reverse Voltage Ratio	$I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$			8 4	$10^{-4}$
$h_{oe}$ **	Output Impedance	$I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$	5 25		35 375	S
$f_T$	Transition Frequency	$I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 100\text{ MHz}$ for <b>STZT2222</b> for <b>STZT2222A</b>	250 300			MHz MHz
$C_{CBO}$	Collector-Base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$			8	pF
$C_{EBO}$	Emitter-Base Capacitance	$I_C = 0$ $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$ for <b>STZT2222</b> for <b>STZT2222A</b>			30 25	pF pF
NF	Noise Figure	$f = 1\text{ KHz}$ $\Delta F = 200\text{ Hz}$ $R_G = 1K\Omega$ $I_C = 0.1\text{ mA}$ $V_{CE} = 10\text{ V}$			4	dB
$t_d$	Delay Time	$I_C = 150\text{ mA}$ $I_{C1} = 15\text{ mA}$			10	ns
$t_r$	Rise Time	$V_{BE} = -0.5\text{ V}$			25	ns
$t_s$	Storage Time	$I_C = 150\text{ mA}$ $I_{C1} = 15\text{ mA}$			225	ns
$t_f$	Fall Time	$I_{B2} = 15\text{ mA}$			60	ns

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 1.5\%$ 

\*\* Only for STZT2222A

**SOT223 MECHANICAL DATA**

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a	2.27	2.3	2.33	89.4	90.6	91.7
b	4.57	4.6	4.63	179.9	181.1	182.3
c	0.2	0.4	0.6	7.9	15.7	23.6
d	0.63	0.65	0.67	24.8	25.6	26.4
e1	1.5	1.6	1.7	59.1	63	66.9
e4			0.32			12.6
f	2.9	3	3.1	114.2	118.1	122.1
g	0.67	0.7	0.73	26.4	27.6	28.7
l1	6.7	7	7.3	263.8	275.6	287.4
l2	3.5	3.5	3.7	137.8	137.8	145.7
L	6.3	6.5	6.7	248	255.9	263.8



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