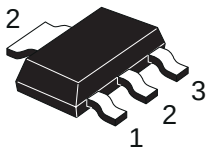
SGS-THOMSON MICROELECTRONICS

STZT2222
STZT2222A

MEDIUM POWER AMPLIFIER

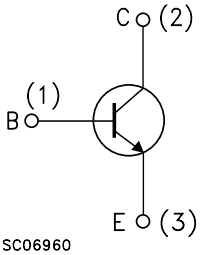
ADVANCE DATA

- 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



SOT-223

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		STZT2222	STZT2222A	
V_{CBO}	Collector-Base Voltage (I_E = 0)	60	75	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	30	40	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	6	V
I_C	Collector Current	0.8		A
P_{tot}	Total Dissipation at T_c = 25 °C	1.5		W
T_{stg}	Storage Temperature	-65 to 150		°C
T_j	Max. Operating Junction Temperature	150		°C

THERMAL DATA

$R_{thj\text{-}amb}$ •	Thermal Resistance Junction-Ambient	Max	83.3	$^oC/W$
$R_{thj\text{-}tab}$ •	Thermal Resistance Junction-Collecor Tab	Max	10	$^oC/W$

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

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

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

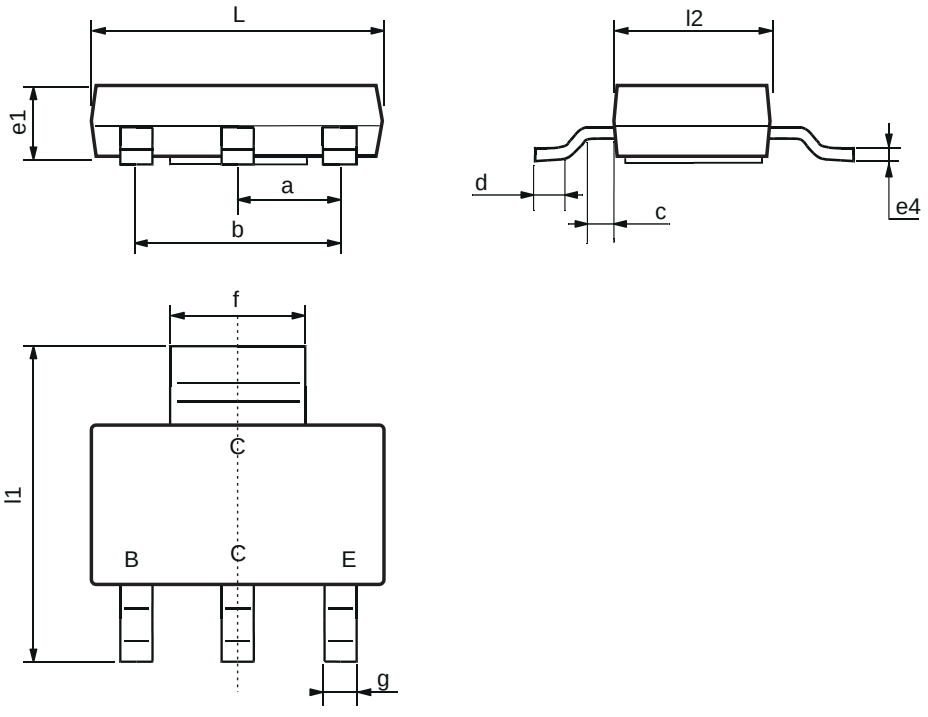
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^{o}C unless otherwise specified)

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

∗ Pulsed: Pulse duration = 300 μs, duty cycle ≤ 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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