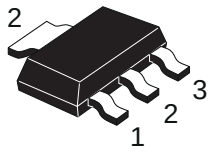
STZT2222
STZT2222A

MEDIUM POWER NPN TRANSISTORS

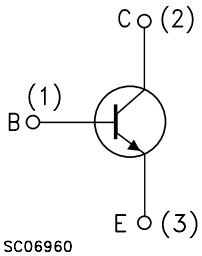
PRELIMINARY DATA

- 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
- THE COMPLEMENTARY PNP TYPES 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} = 50 V V_{CB} = 50 V 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			10	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 **STZT2222A**	35 50 75 100 50 30 40 35		 300	

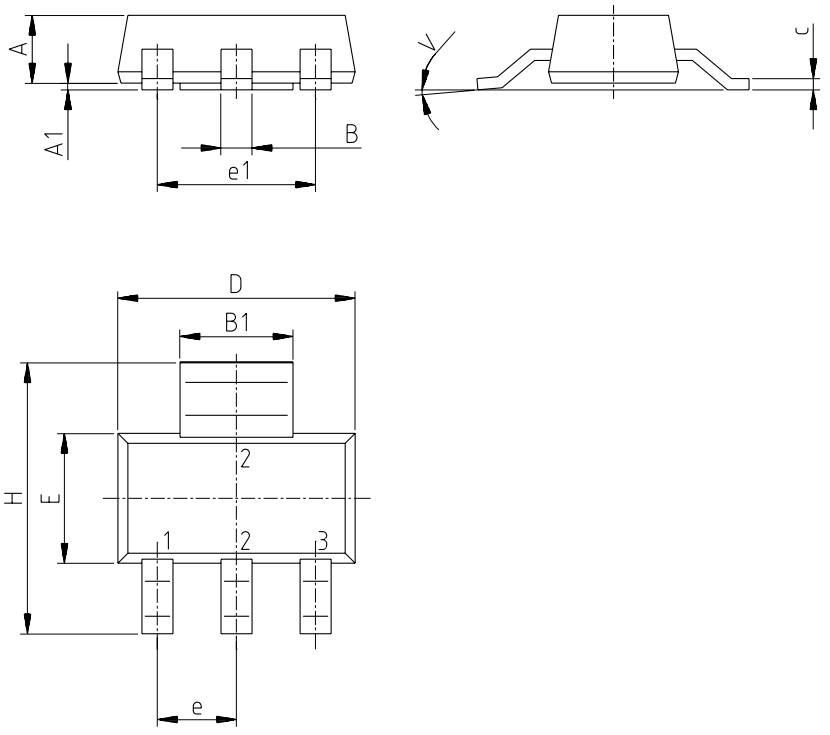
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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	
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		 1.25	Ω Ω
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			$8x10^{-4}$ $4x10^{-4}$	
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		35 200	µS µS
f_T	Transition Frequency	I_C = 20 mA V_{CE} = 20 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 = 100 KHz			8	pF
C_{EBO}**	Emitter-Base Capacitance	I_C = 0 V_{EB} = 0.5 V f = 100 KHz			25	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_{B1} = 15 mA V_{BB} = -0.5 V V_{CC} = 30 V			10	ns
t_r**	Rise Time				25	ns
t_s**	Storage Time	I_C = 150 mA V_{CC} = 30 V I_{B1} = $-I_{B2}$ = 15 mA			225	ns
t_f**	Fall Time				60	ns

∗ Pulsed: Pulse duration = 300 µs, duty cycle ≤ 1.5 %
∗∗ Only for STZT2222A

SOT-223 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.80			0.071
B	0.60	0.70	0.80	0.024	0.027	0.031
B1	2.90	3.00	3.10	0.114	0.118	0.122
c	0.24	0.26	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.30			0.090	
e1		4.60			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276	0.287
V			10^o			10^o
A1		0.02				



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