

## NPN MEDIUM POWER TRANSISTORS

Type	Marking
STF715	715
STN715	N715

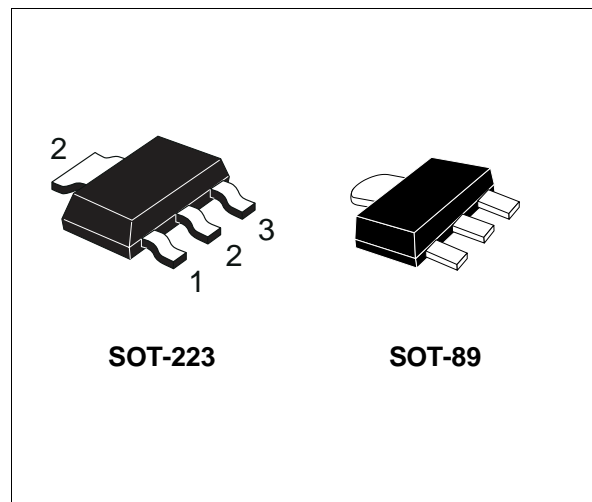
- SURFACE-MOUNTING DEVICES IN MEDIUM POWER SOT-223 AND SOT-89 PACKAGES
- AVAILABLE IN TAPE & REEL PACKING

### APPLICATIONS

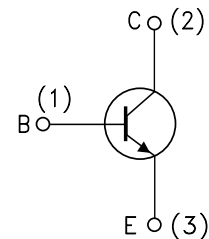
- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

### DESCRIPTION

The STF715 and STN715 are NPN transistors manufactured using Planar Technology resulting in rugged high performance devices.



### INTERNAL SCHEMATIC DIAGRAM



SC06960

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit	
		Devices	STN715		STF715
		Packages	SOT-223		SOT-89
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	140		V	
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	80		V	
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	5		V	
$I_C$	Collector Current	1.5		A	
$I_{CM}$	Collector Peak Current ( $t_p < 5$ ms)	2		A	
$I_B$	Base Current	0.3		A	
$I_{BM}$	Base Peak Current ( $t_p < 5$ ms)	0.6		A	
$P_{tot}$	Total Dissipation at $T_c = 25$ °C	1.6	1.4	W	
$T_{stg}$	Storage Temperature	-65 to 150		°C	
$T_j$	Max. Operating Junction Temperature	150		°C	

## STF715 - STN715

### THERMAL DATA

			SOT-223	SOT-89	
$R_{thj-amb}$ •	Thermal Resistance Junction-ambient	Max	78	89	°C/W

• Device mounted on a PCB area of 1 cm<sup>2</sup>.

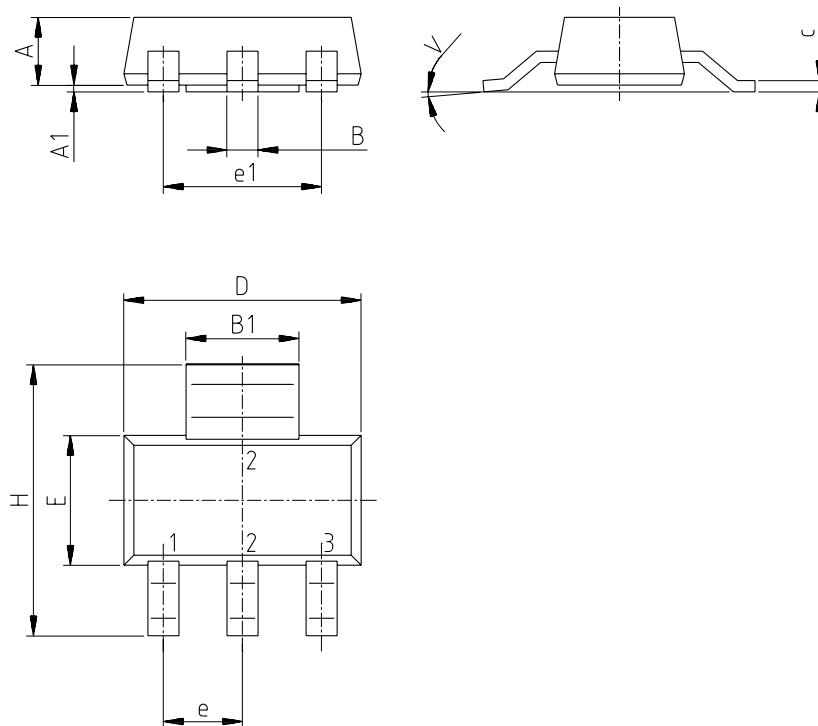
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = 140 V				500	μA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 80 V				1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V				100	μA
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 10 mA		80			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 100 mA I <sub>C</sub> = 1 A	I <sub>B</sub> = 10 mA I <sub>B</sub> = 100 mA			0.25 0.5	V V
V <sub>BE(sat)</sub> *	Base-Emitter Saturation Voltage	I <sub>C</sub> = 100 mA I <sub>C</sub> = 1 A	I <sub>B</sub> = 10 mA I <sub>B</sub> = 100 mA			1 1.1	V V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 100 mA I <sub>C</sub> = 500 mA I <sub>C</sub> = 1 A	V <sub>CE</sub> = 2 V V <sub>CE</sub> = 2 V V <sub>CE</sub> = 2 V	140 80 40			
f <sub>T</sub>	Transition Frequency	I <sub>C</sub> = 0.1 A	V <sub>CE</sub> = 10 V		50		MHz

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

## SOT-223 MECHANICAL DATA

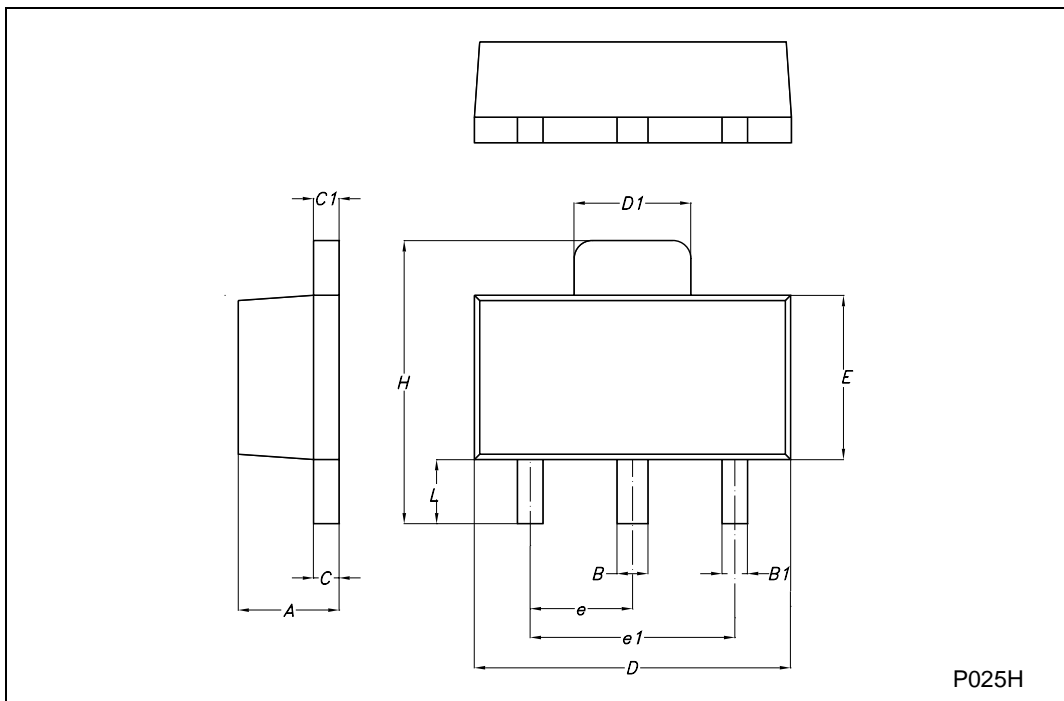
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.80			0.071
B	0.60	0.70	0.80	0.024	0.027	0.031
B1	2.90	3.00	3.10	0.114	0.118	0.122
c	0.24	0.26	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.30			0.090	
e1		4.60			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276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



P008B

**SOT-89 MECHANICAL DATA**

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.4		1.6	55.1		63.0
B	0.44		0.56	17.3		22.0
B1	0.36		0.48	14.2		18.9
C	0.35		0.44	13.8		17.3
C1	0.35		0.44	13.8		17.3
D	4.4		4.6	173.2		181.1
D1	1.62		1.83	63.8		72.0
E	2.29		2.6	90.2		102.4
e	1.42		1.57	55.9		61.8
e1	2.92		3.07	115.0		120.9
H	3.94		4.25	155.1		167.3
L	0.89		1.2	35.0		47.2



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