



# THE DATASHEET OF STN715



## NPN MEDIUM POWER TRANSISTORS

Type	Marking
STF715	715
STN715	N715

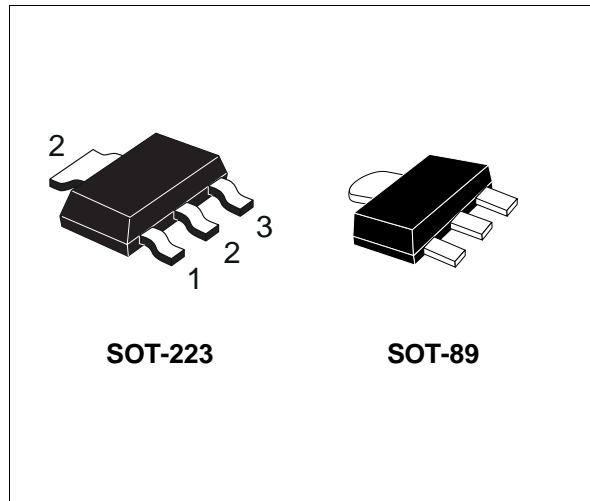
- SURFACE-MOUNTING DEVICES IN MEDIUM POWER SOT-223 AND SOT-89 PACKAGES
- AVAILABLE IN TAPE & REEL PACKING

### APPLICATIONS

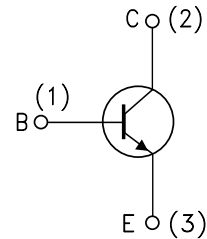
- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

### 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>.

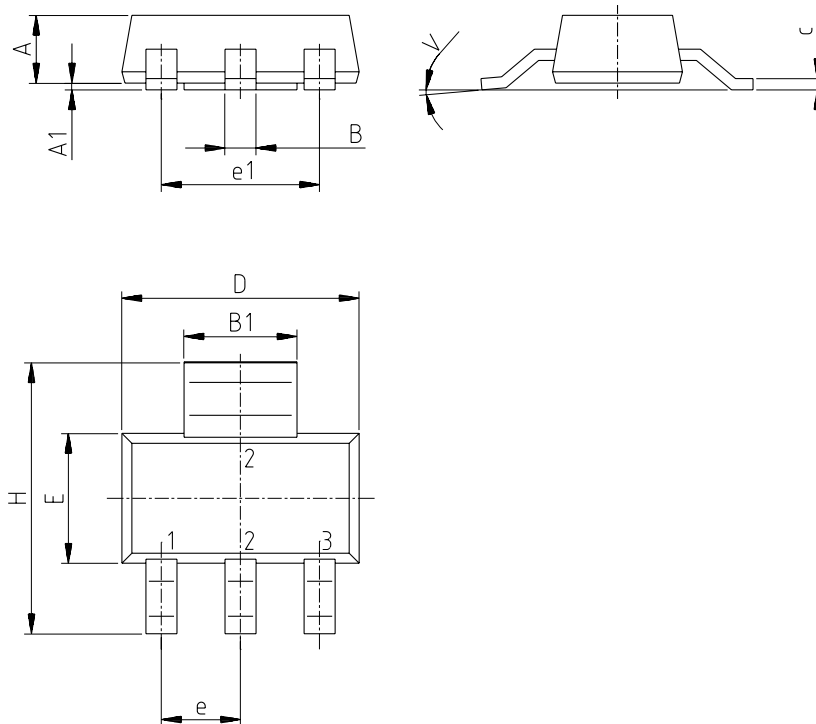
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

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

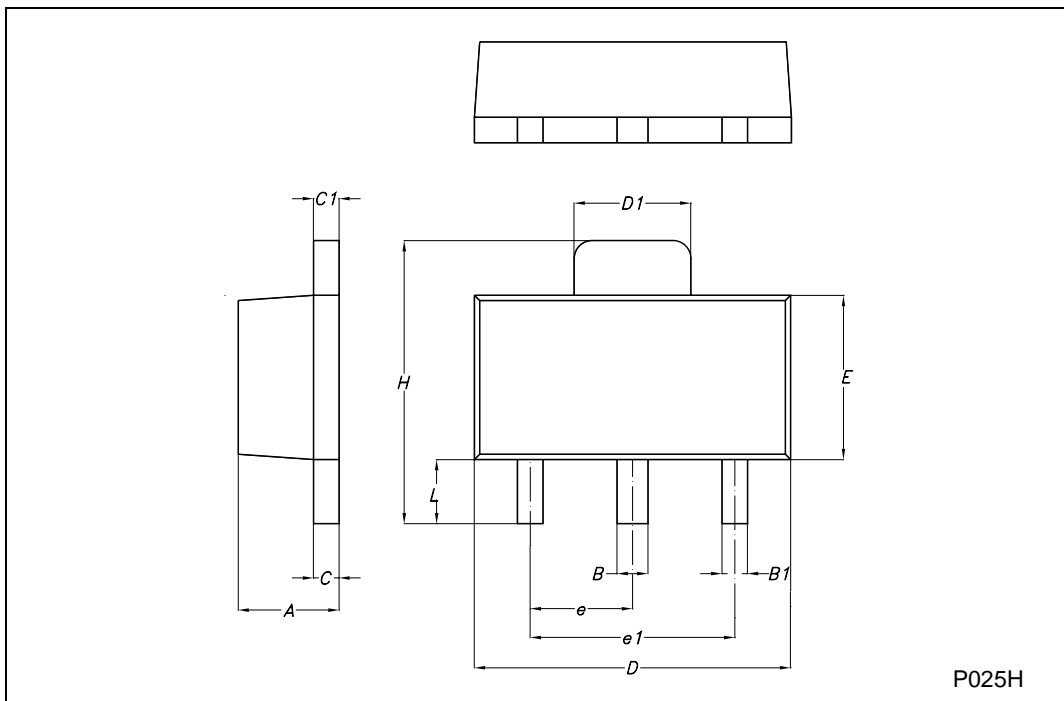
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.80			0.071
B	0.60	0.70	0.80	0.024	0.027	0.031
B1	2.90	3.00	3.10	0.114	0.118	0.122
c	0.24	0.26	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.30			0.090	
e1		4.60			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276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



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2002 STMicroelectronics – Printed in Italy – All Rights Reserved



STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View STN715 on WIN SOURCE](#)
-  [STMicroelectronics Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management