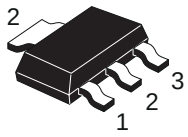
STF724
STN724

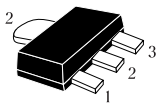
NPN MEDIUM POWER TRANSISTORS

Features

- SURFACE MOUNTING DEVICES IN MEDIUM POWER SOT-223 AND SOT-89 PACKAGE
- AVAILABLE IN TAPE & REEL PACKING
- IN COMPLIANCE WITH THE 2002/93/EC EUROPEAN DIRECTIVE



SOT-223



SOT-89

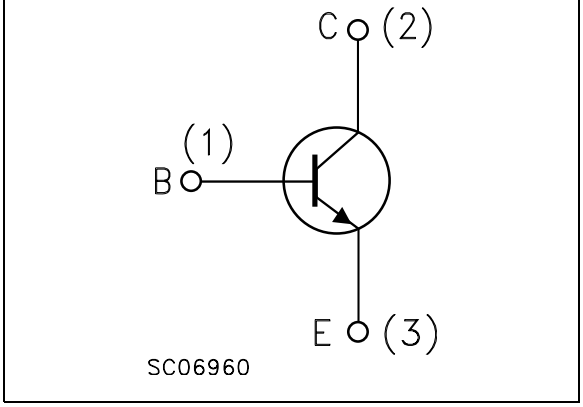
Applications

- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

Description

The STF724 and STN724 are PNP transistors manufactured using planar Technology resulting in rugged high performance devices.

Internal Schematic Diagram



Order codes

Part Number	Marking	Package	Packing
STF724	724	SOT-89	Tape & reel
STN724	N724	SOT-223	Tape & reel

1 Absolute Maximum Ratings

Table 1. Absolute Maximum Rating

Symbol	Parameter	Value		Unit
		STF724	STN724	
V_{CBO}	Collector-Base Voltage (I_E = 0)	60		V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	30		V
V_{EBO}	Collector-Base Voltage (I_C = 0)	5		V
I_C	Collector Current	3		A
I_{CM}	Collector Peak Current (t_P < 5ms)	6		A
I_B	Base Current	1		A
I_{BM}	Base Peak Current (t_P < 5ms)	2		A
P_{TOT}	Total dissipation at T_c = 25°C	1.4	1.6	W
T_{STG}	Storage Temperature	-65 to 150		°C
T_J	Max. Operating Junction Temperature	150		

Table 2. Thermal Data

Symbol	Parameter		Value		Unit
			SOT-89	SOT-223	
$R_{thj\text{-}amb}$ *Note: 1*	Thermal Resistance Junction-Amb	Max	89	78	°C/W

Note: 1 Device mounted on a PCB area of 1 cm^2.

2 Electrical Characteristics

Table 3. Electrical Characteristics (T_{CASE} = 25°C; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 60V			10	µA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 30V			100	µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5V			10	µA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 100µA	60			V
$V_{(BR)CEO}$ *Note 2*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA	30			V
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage (I_C = 0)	I_E = 100 µA	5			V
$V_{CE(sat)}$ *Note 2*	Collector-Emitter Saturation Voltage	I_C = 1 A I_B = 50 mA I_C = 2 A I_B = 100 mA I_C = 3 A I_B = 150 mA			0.4 0.7 1.1	V V V
$V_{BE(sat)}$ *Note 2*	Base-Emitter Saturation Voltage	I_C = 2 A I_B = 100 mA			1.2	V
h_{FE}	DC Current Gain	I_C = 100 mA V_{CE} = 2 V I_C = 1 A V_{CE} = 2 V I_C = 3 A V_{CE} = 2 V	100 80 30		300	
f_T	Transistor Frequency	V_{CE} = 10 V I_c= 0.1 A		100		MHz

2 Pulsed duration = 300 µs, duty cycle ≤1.5%.

2.1 Electrical characteristics (curve)

Figure 1. DC Current Gain

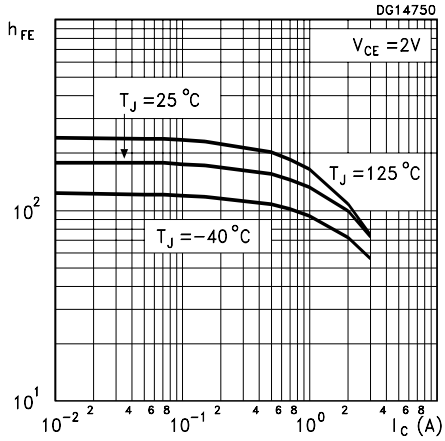


Figure 2. DC Current Gain

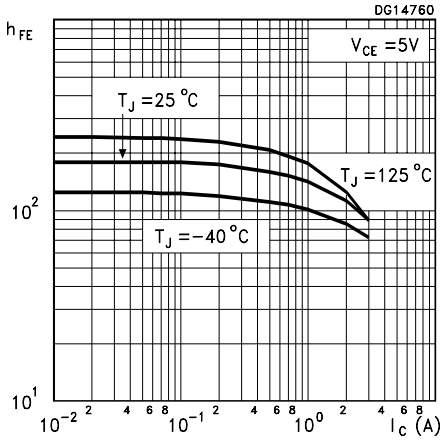


Figure 3. Collector-emitter saturation voltage

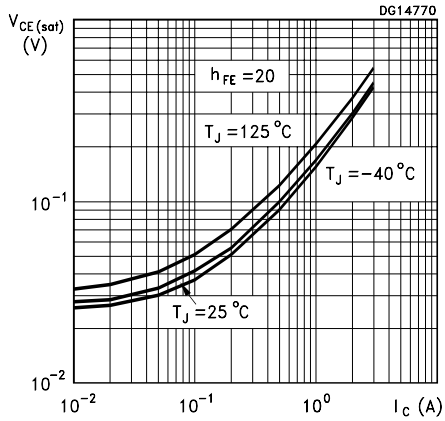


Figure 4. Base-emitter saturation voltage

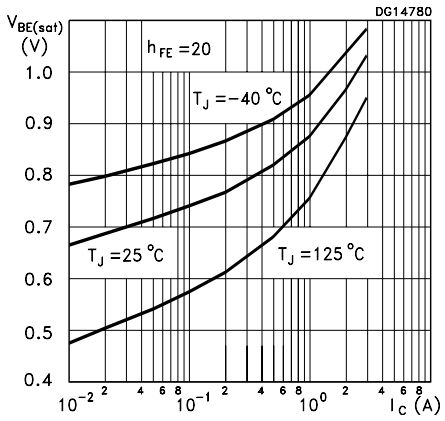


Figure 5. Switching times on resistive load

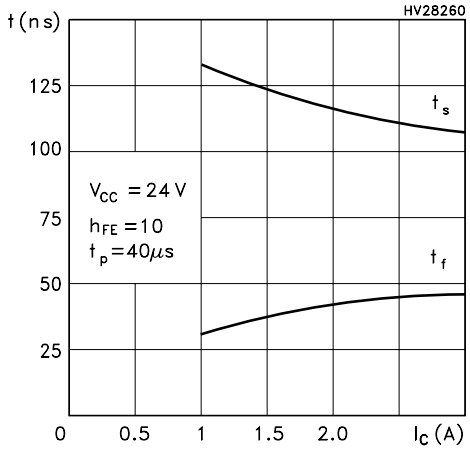


Figure 6. Switching times resistive on load

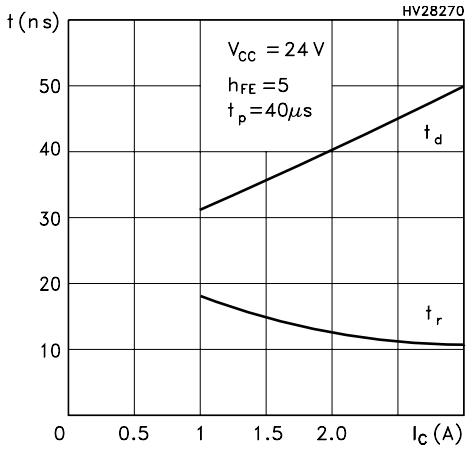
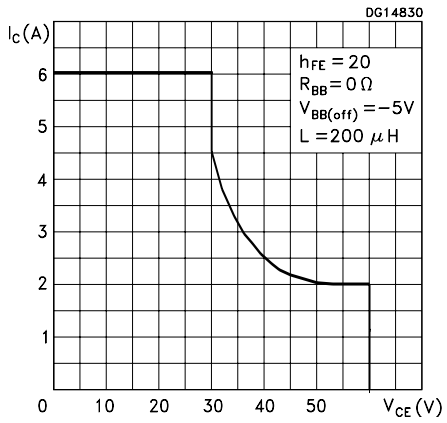


Figure 7. Reverse biased area

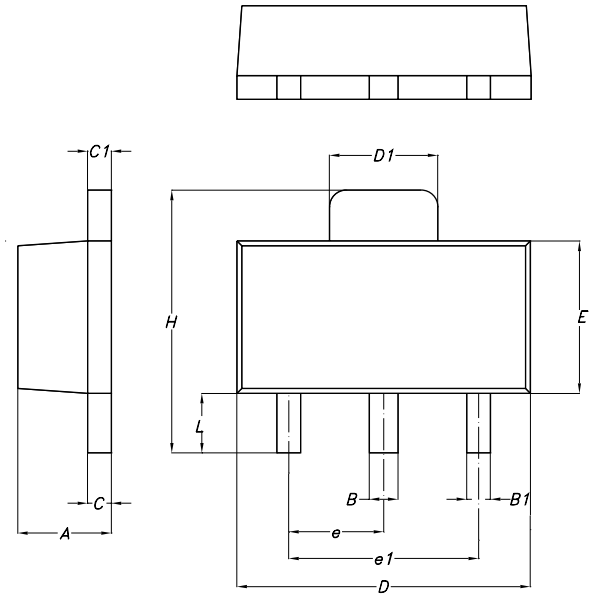


3 Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

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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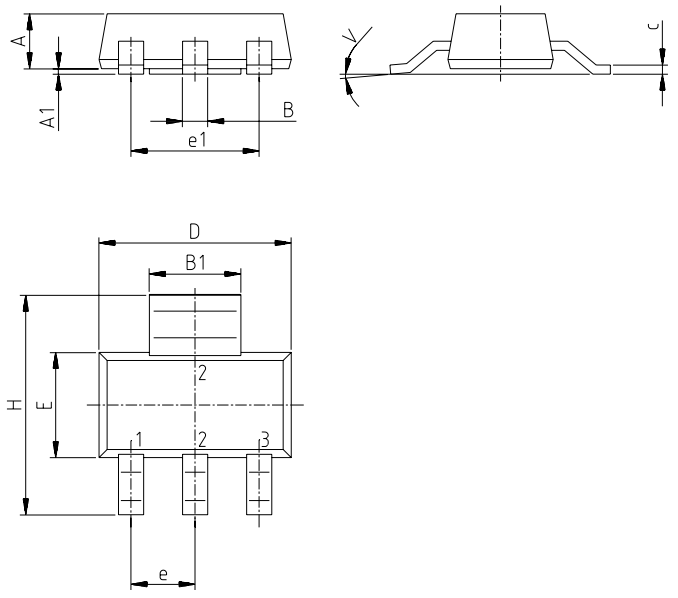
SOT-223 MECHANICAL DATA

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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4 Revision History

Date	Revision	Changes
12-Oct-2005	1	Initial release.