

## COMPLEMENTARY SILICON POWER TRANSISTORS

- ST PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICAL SIMILAR TO BD909 AND BD910

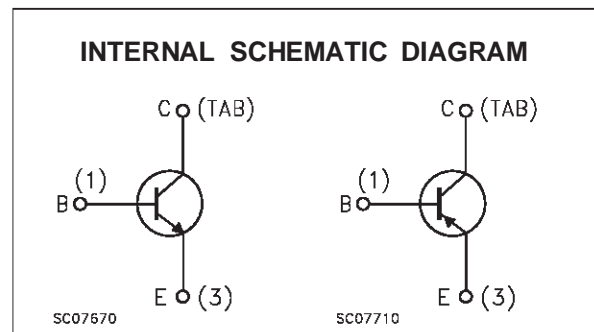
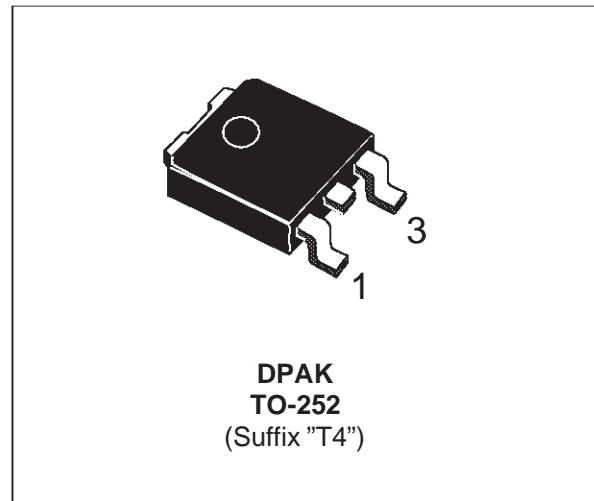
### APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- GENERAL PURPOSE AMPLIFIER

### DESCRIPTION

The STD909 and STD910 form complementary NPN - PNP pairs.

They are manufactured using Medium Voltage Epitaxial Base technology for cost-effective performance.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	STD909	
		PNP	STD910	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )		80	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		15	A
$I_B$	Base Current		5	A
$P_{tot}$	Total Dissipation at $T_{case} = 25\text{ }^\circ\text{C}$		20	W
$T_{stg}$	Storage Temperature		-65 to 150	$^\circ\text{C}$
$T_j$	Max Operating Junction Temperature		150	$^\circ\text{C}$

For PNP types voltage and current values are negative.

# STD909 / STD910

## THERMAL DATA

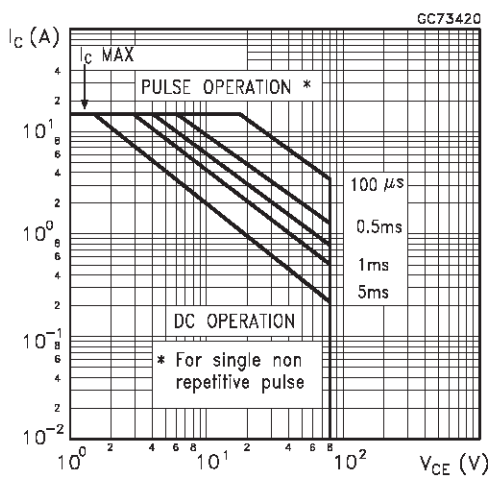
$R_{thj-case}$	Thermal Resistance Junction-case	Max	6.25	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}C/W$

## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

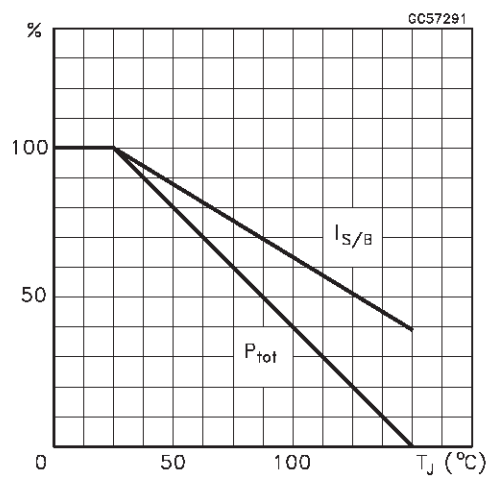
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = 80 V$			0.01	mA
		$V_{CB} = 80 V$ $T_J = 150^{\circ}C$			2	mA
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CB} = 40 V$			0.01	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5 V$			0.1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 100 mA$	80			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 5 A$ $I_B = 0.5 A$			1	V
		$I_C = 10 A$ $I_B = 2.5 A$			3	V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 10 mA$ $I_B = 2.5 A$			2.5	V
$V_{BE*}$	Base-Emitter Voltage	$I_C = 5 A$ $V_{CE} = 4 A$			1.5	V
$h_{FE*}$	DC Current Gain	$I_C = 0.5 A$ $V_{CE} = 4 V$	40		250	
		$I_C = 5 A$ $V_{CE} = 4 V$	15		150	
		$I_C = 10 A$ $V_{CE} = 4 V$	5			
$f_T$	Transition Frequency	$I_C = 0.5 A$ $V_{CE} = 4 V$	3			MHz

\* Pulsed: Pulse duration = 300  $\mu s$ , duty cycle  $\leq 2\%$   
 For PNP type voltage and current values are negative.

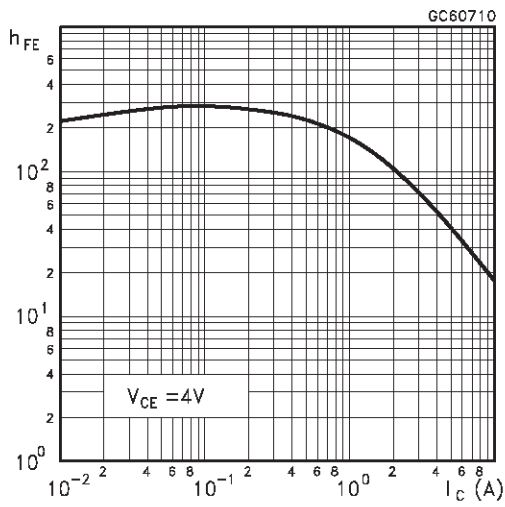
## Safe Operating Area



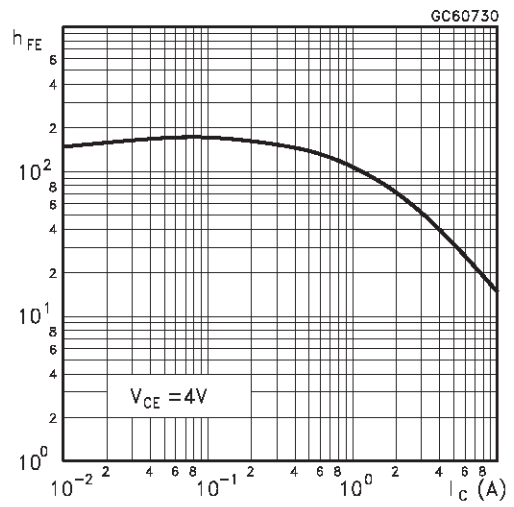
## Derating Curve



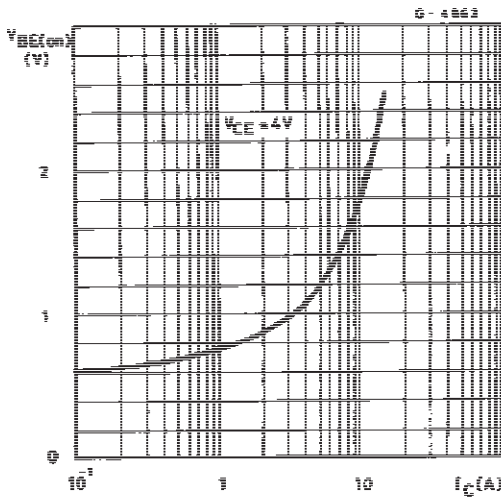
DC Current Gain (NPN type)



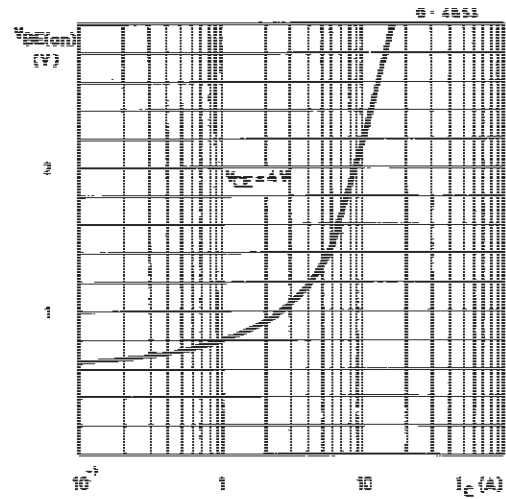
DC Current Gain (PNP type)



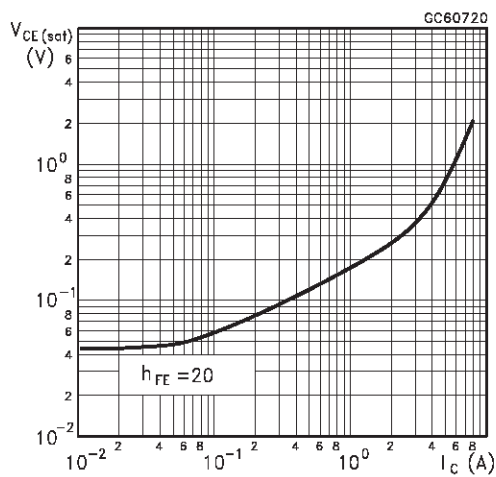
DC Transconductance (NPN type)



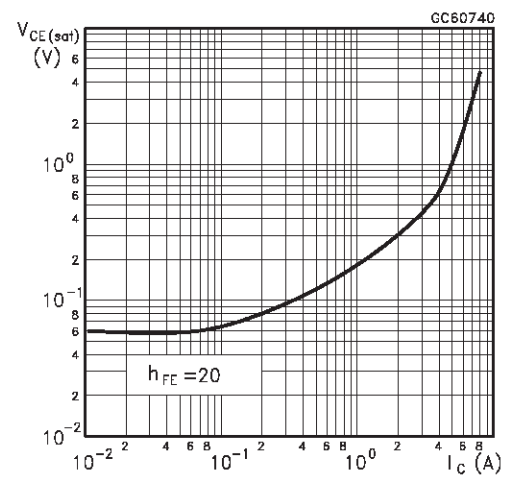
DC Transconductance (PNP type)



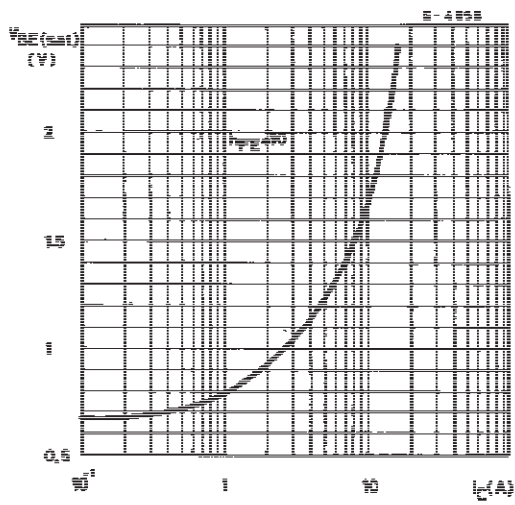
Collector-Emitter Saturation Voltage (NPN type)



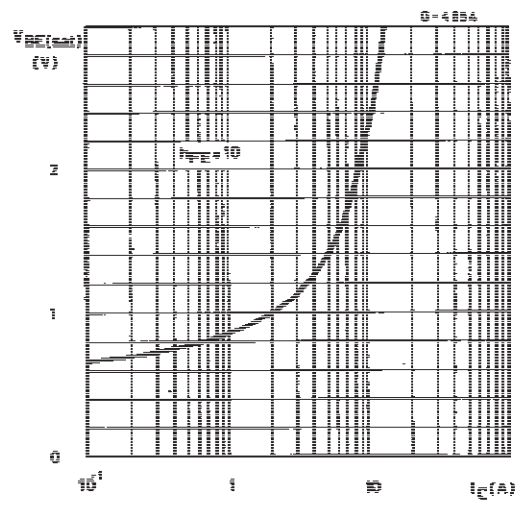
Collector-Emitter Saturation Voltage (PNP type)



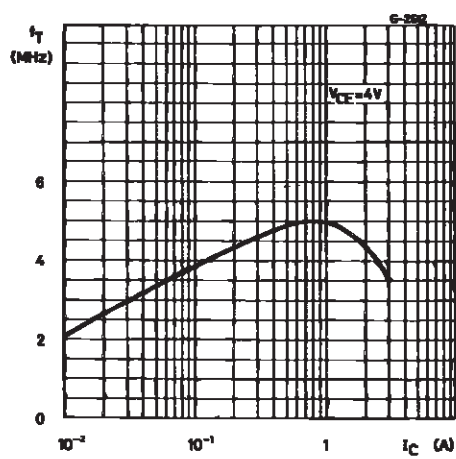
Base-Emitter Saturation Voltage (NPN type)



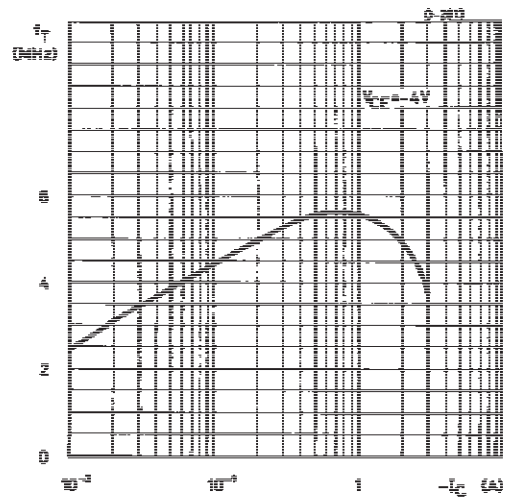
Base-Emitter Saturation Voltage (PNP type)



Transition Frequency (NPN type)

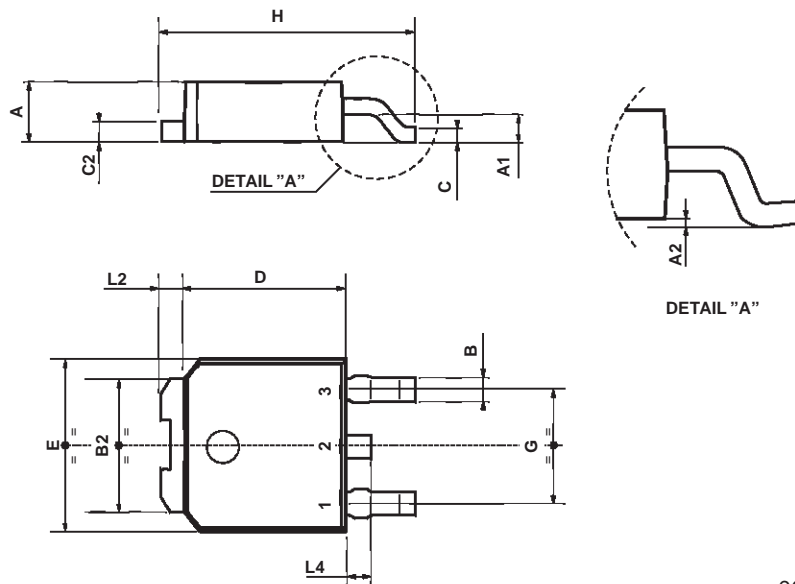


Transition Frequency (PNP type)



TO-252 (DPAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



0068772-B

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

© 1998 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.