

COMPLEMENTARY SILICON POWER TRANSISTORS

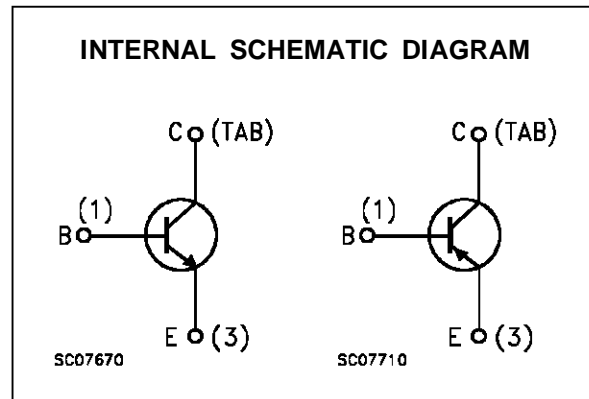
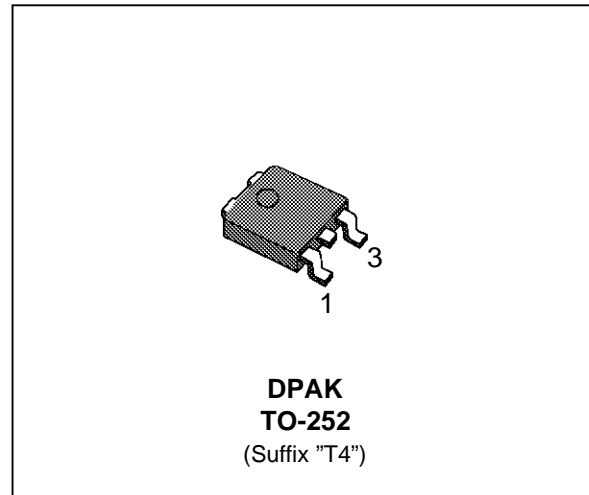
- SGS-THOMSON PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICAL SIMILAR TO BD909 AND BD910

APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER

DESCRIPTION

The STD909 and the STD910 form complementary NPN-PNP pairs. They are manufactured using Epitaxial Base technology for cost-effective performance.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
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 $T_c = 25^\circ\text{C}$	20	W
T_{stg}	Storage Temperature	-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	150	$^\circ\text{C}$

For PNP type 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	$^{\circ}C/W$

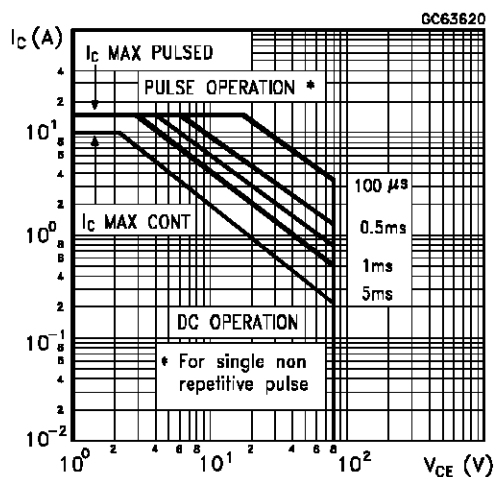
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

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

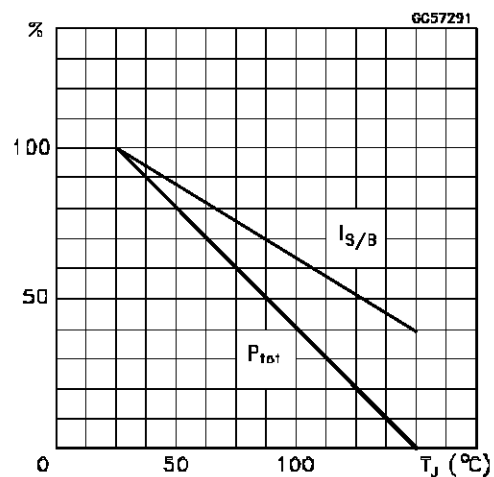
* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

For PNP type voltage and current values are negative.

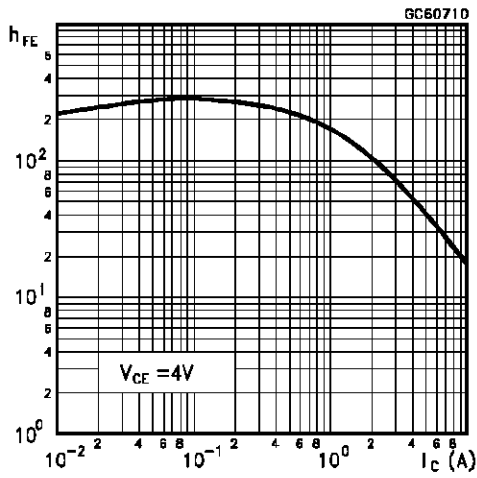
Safe Operating Areas



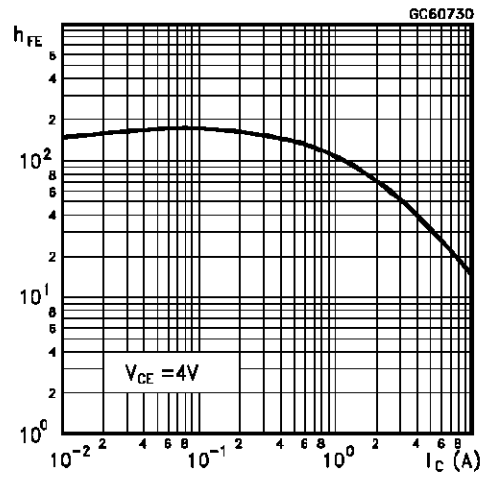
Derating Curve



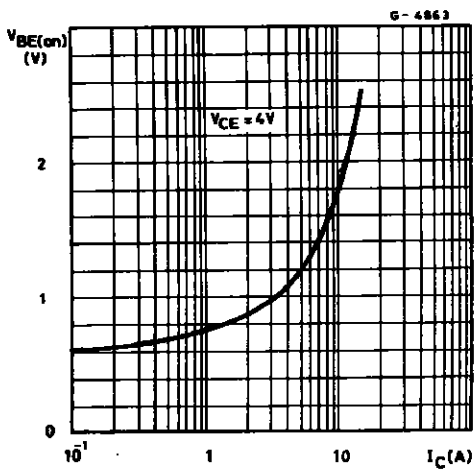
DC Current Gain (NPN type)



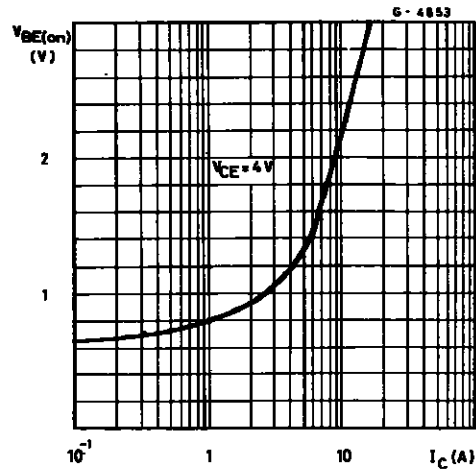
DC Current Gain (PNP type)



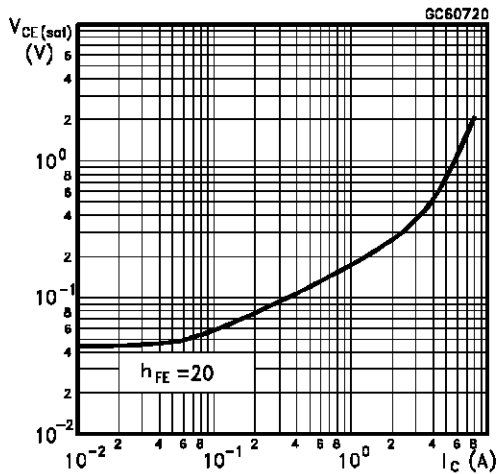
DC Transconductance (NPN type)



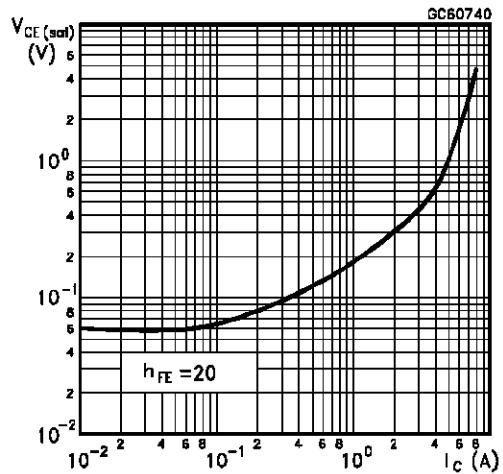
DC Transconductance (PNP type)



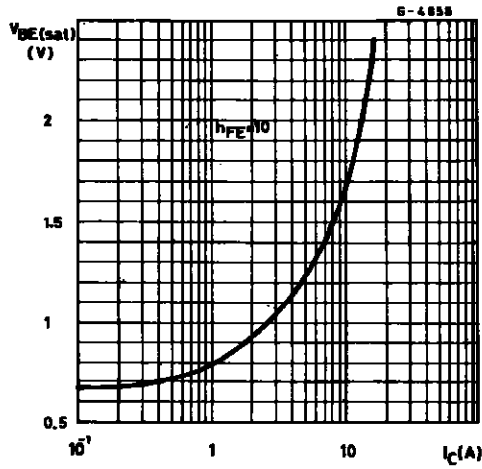
Collector-Emitter Saturation Voltage (NPN type)



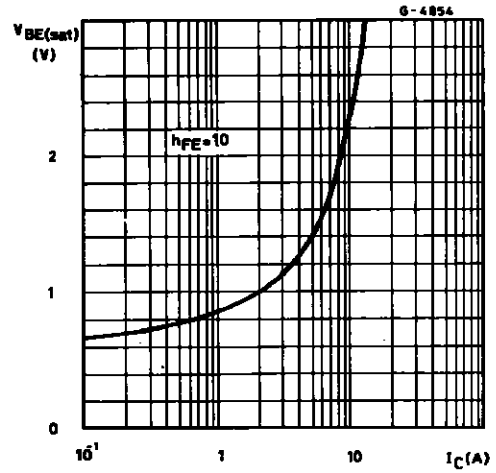
Collector-Emitter Saturation Voltage (PNP type)



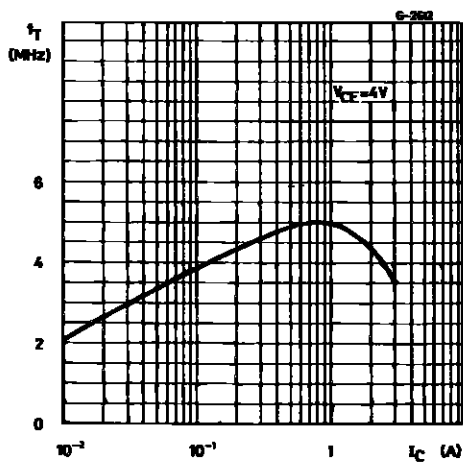
Base-Emitter Saturation Voltage (NPN type)



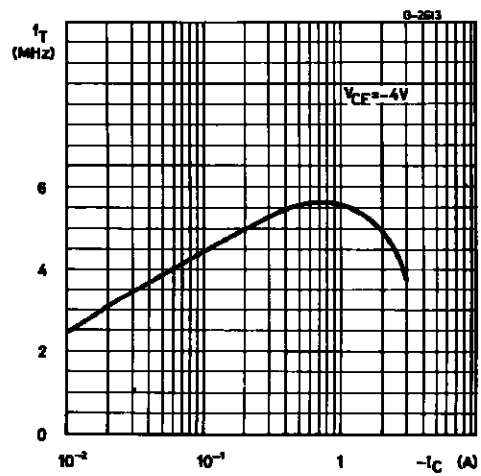
Base-Emitter Saturation Voltage (PNP type)



Transition Frequency (NPN types)

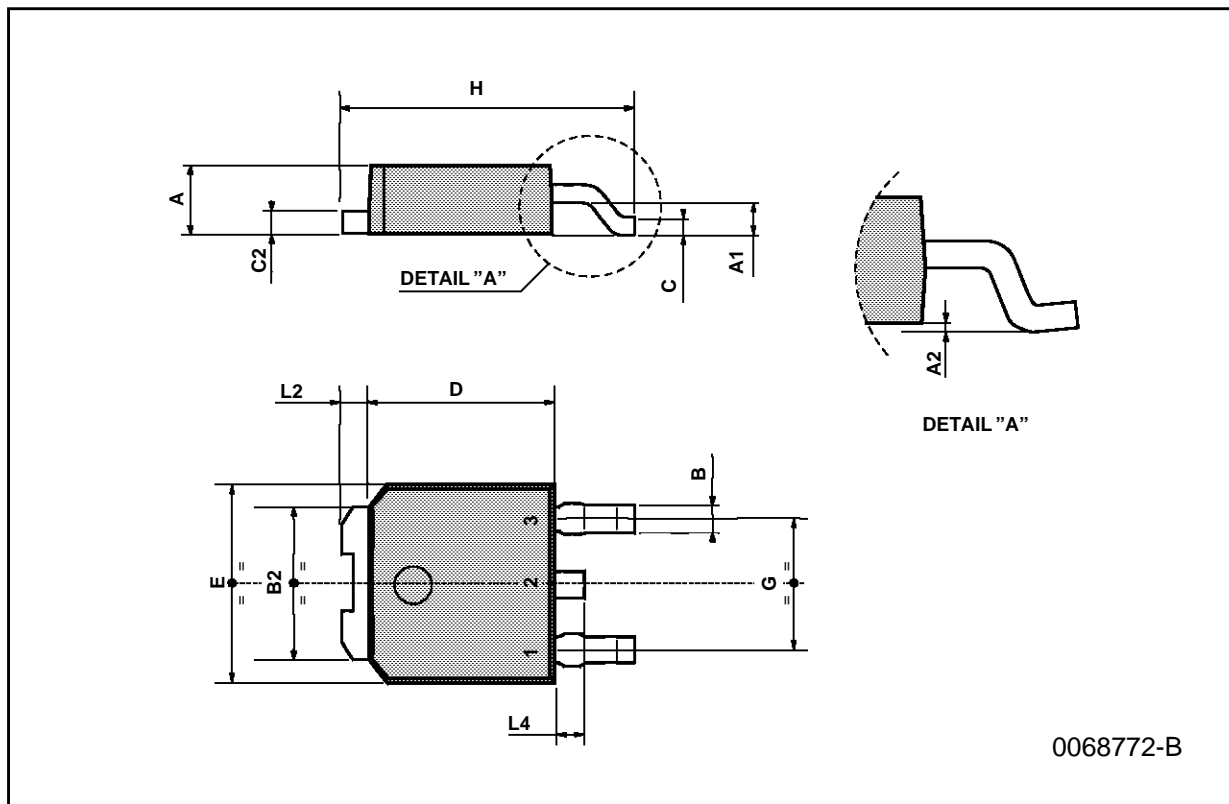


Transition Frequency (PNP types)



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



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