STD909
STD910

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

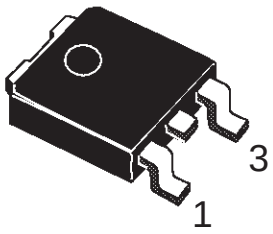
APPLICATIONS

- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- GENERAL PURPOSE AMPLIFIER

DESCRIPTION

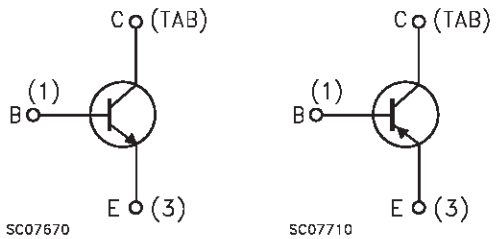
The STD909 and STD910 form complementary NPN - PNP pairs.

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



DPAK
TO-252
(Suffix "T4")

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		NPN	STD909	
		PNP	STD910	
V_{CBO}	Collector-Base Voltage (IE = 0)		80	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		80	V
V_{EBO}	Emitter-Base Voltage (IC = 0)		5	V
I_C	Collector Current		15	A
I_B	Base Current		5	A
P_{tot}	Total Dissipation at T_{case} = 25 °C		20	W
T_{stg}	Storage Temperature		-65 to 150	°C
T_j	Max Operating Junction Temperature		150	°C

For PNP types voltage and current values are negative.

THERMAL DATA

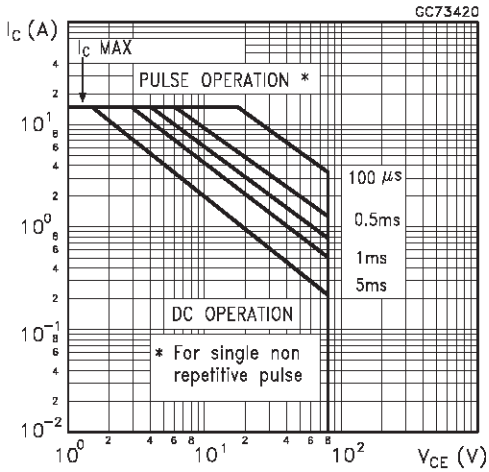
$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	6.25	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient Max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

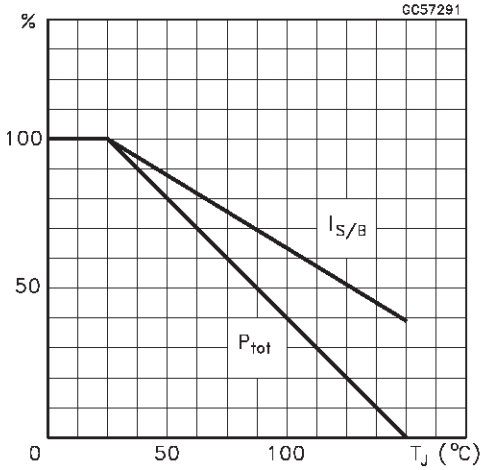
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 80 V V_{CB} = 80 V T_J = 150 °C			0.01 2	mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CB} = 40 V			0.01	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			0.1	mA
$V_{CEO(sus)}$	Collector-Emitter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

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %
For PNP type voltage and current values are negative.

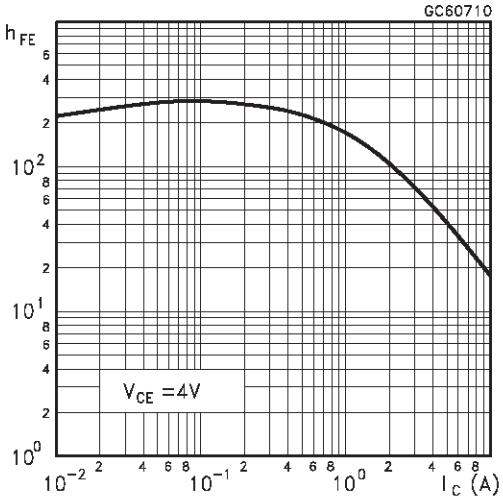
Safe Operating Area



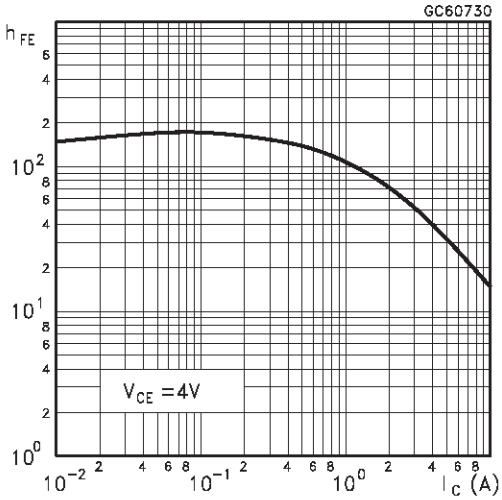
Derating Curve



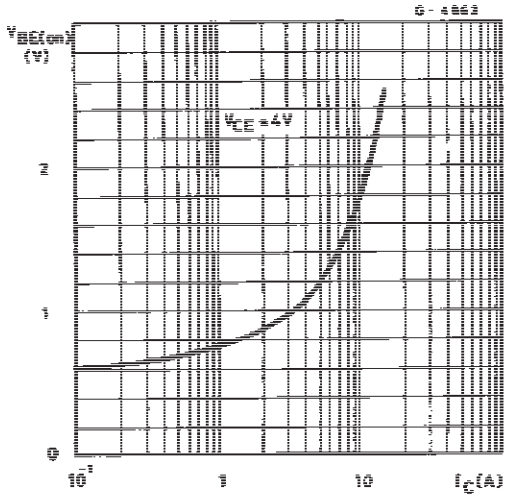
DC Current Gain (NPN type)



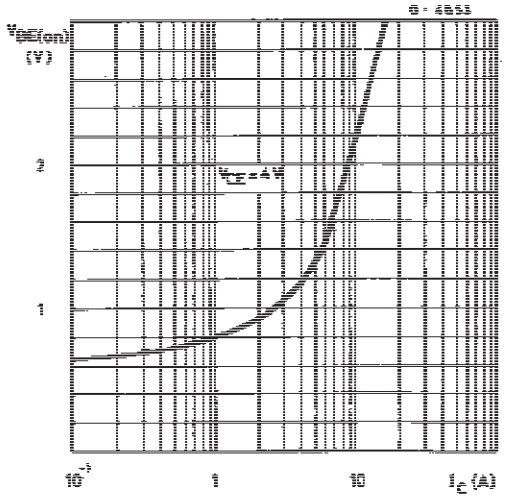
DC Current Gain (PNP type)



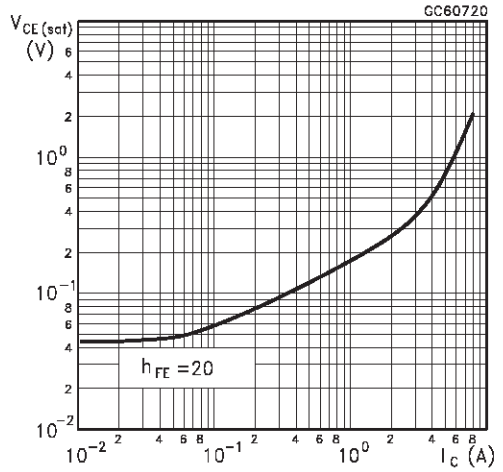
DC Transconductance (NPN type)



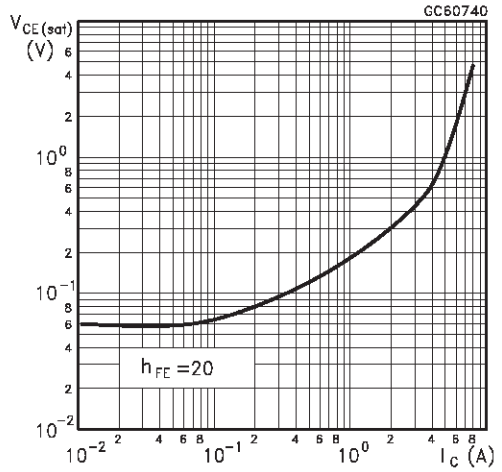
DC Transconductance (PNP type)



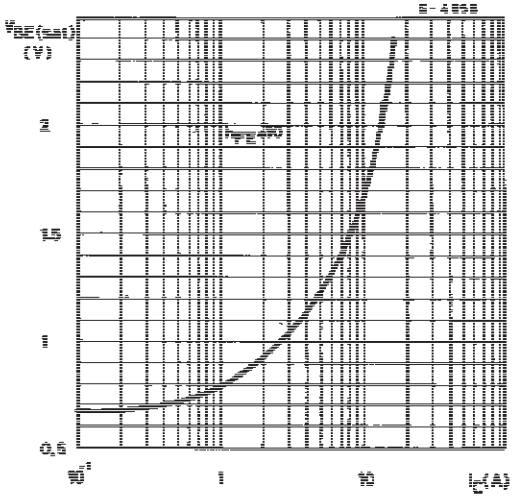
Collector-Emitter Saturation Voltage (NPN type)



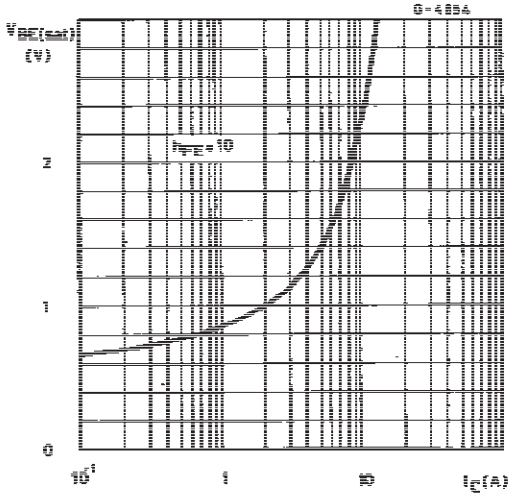
Collector-Emitter Saturation Voltage (PNP type)



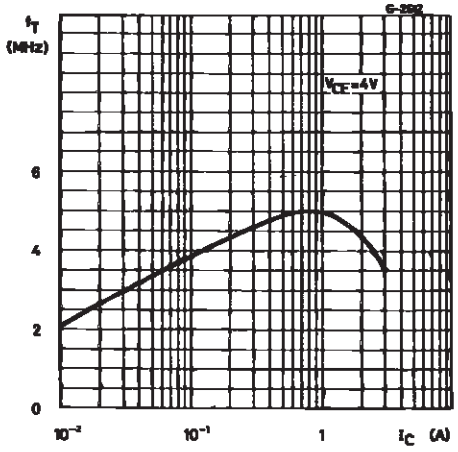
Base-Emitter Saturation Voltage (NPN type)



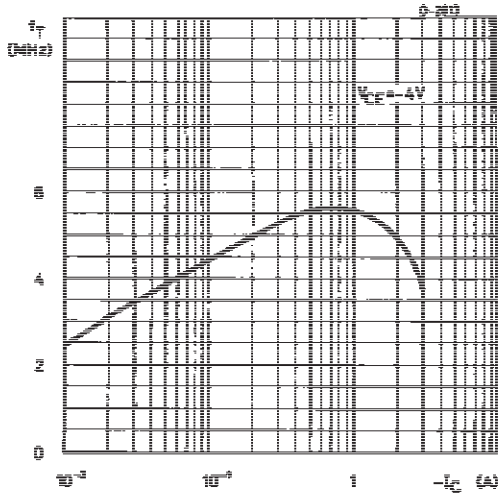
Base-Emitter Saturation Voltage (PNP type)



Transition Frequency (NPN type)

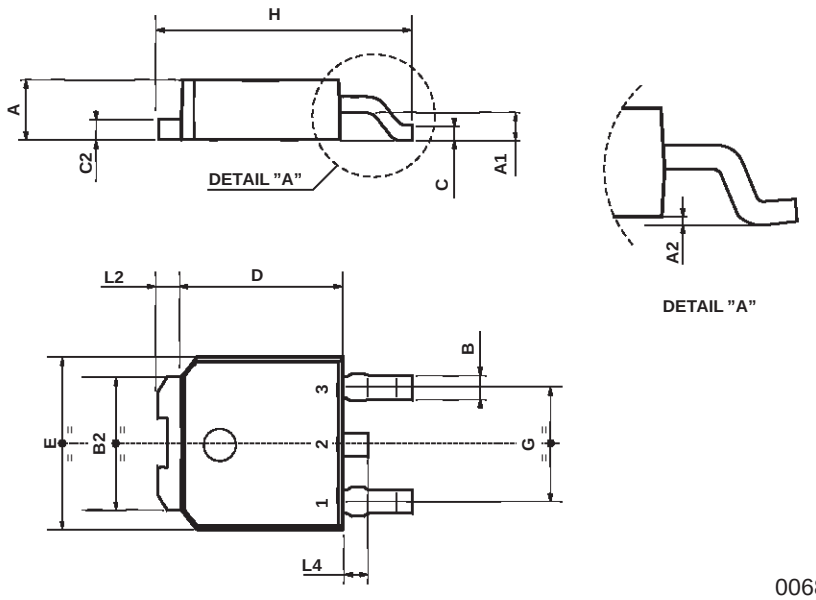


Transition Frequency (PNP type)



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