STX112

SILICON NPN POWER DARLINGTON TRANSISTOR

- MONOLITHIC DARLINGTON CONFIGURATION
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

APPLICATIONS

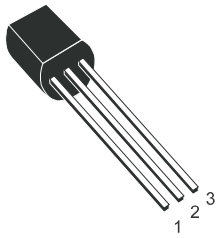
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The device is a silicon Epitaxial-Base NPN transistor in monolithic Darlington configuration mounted in TO-92 plastic package. It is intented for use in linear and switching applications.

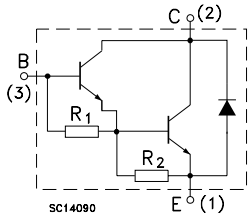
Ordering codes:

STX112	(shipment in bulk)
STX112-AP	(shipment in ammopack)



TO-92

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ.= 7K Ω R_2 Typ.= 230

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	100	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	V
I_C	Collector Current	2	A
I_{CM}	Collector Peak Current	4	A
I_B	Base Current	50	mA
P_{tot}	Total Dissipation at T_{amb} = 25 °C	1.2	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

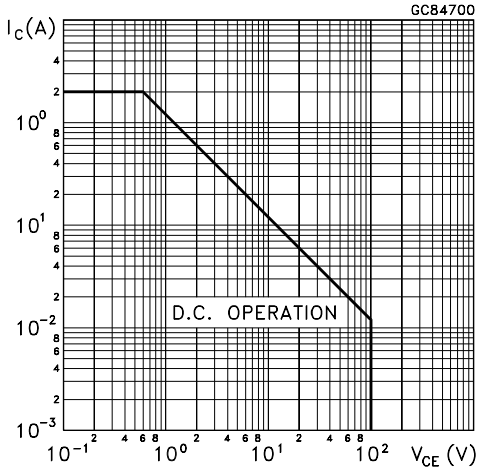
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	104	°C/W

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

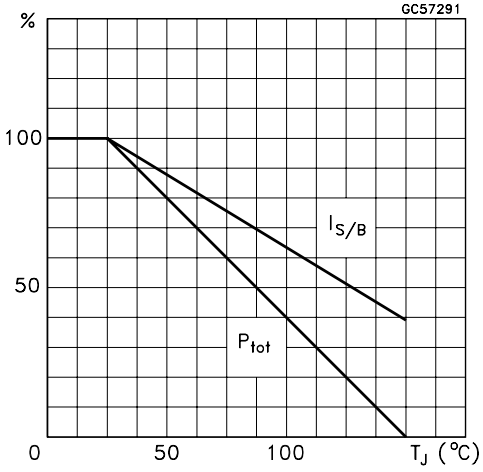
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 50 V			2	mA
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 100 V			1	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA	100			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 8 mA			2.5	V
V_{BE}*	Base-Emitter Voltage	I_C = 2 A V_{CE} = 4 V			2.8	V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 4 V I_C = 2 A V_{CE} = 4 V	1000 500			

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

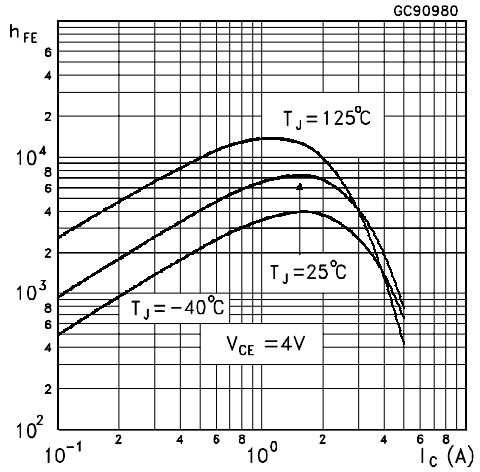
Safe Operating Area



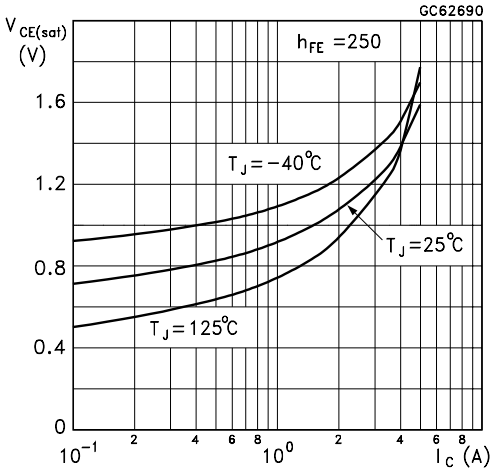
Derating Curve



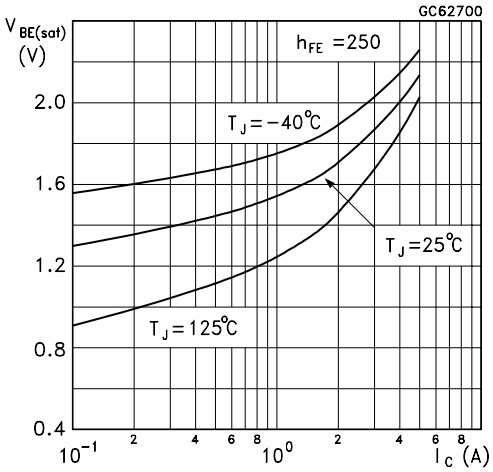
DC Current Gain



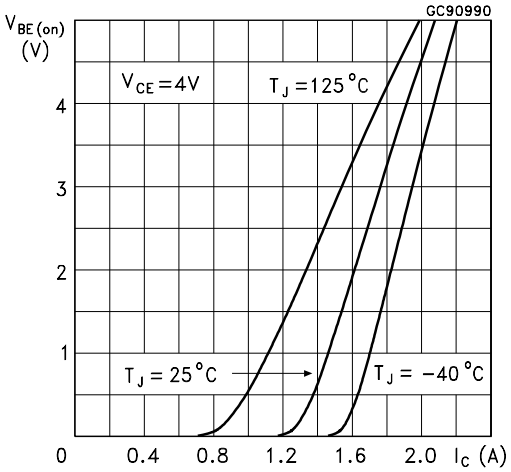
Collector-Emitter Saturation Voltage



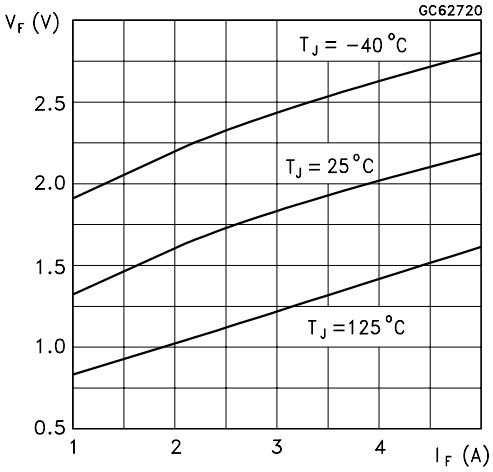
Base-Emitter Saturation Voltage



Base-Emitter On Voltage



Freewheel Diode Forward Voltage



TO-92 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.58		5.33	0.180		0.210
B	4.45		5.2	0.175		0.204
C	3.2		4.2	0.126		0.165
D	12.7			0.500		
E		1.27			0.050	
F	0.4		0.51	0.016		0.020
G	0.35			0.14