



# STX112

## SILICON NPN POWER DARLINGTON TRANSISTOR

- MONOLITHIC DARLINGTON CONFIGURATION
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

### APPLICATIONS

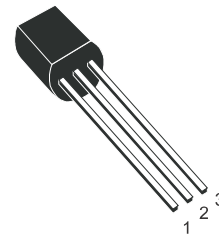
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

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

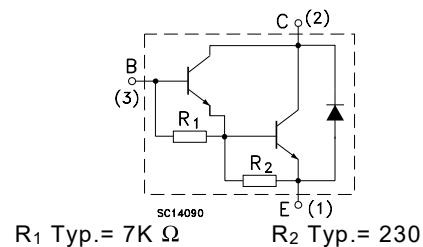
Ordering codes:

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



TO-92

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	100	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)	5	V
I <sub>C</sub>	Collector Current	2	A
I <sub>CM</sub>	Collector Peak Current	4	A
I <sub>B</sub>	Base Current	50	mA
P <sub>tot</sub>	Total Dissipation at T <sub>amb</sub> = 25 °C	1.2	W
T <sub>stg</sub>	Storage Temperature	-65 to 150	°C
T <sub>j</sub>	Max. Operating Junction Temperature	150	°C

THERMAL DATA

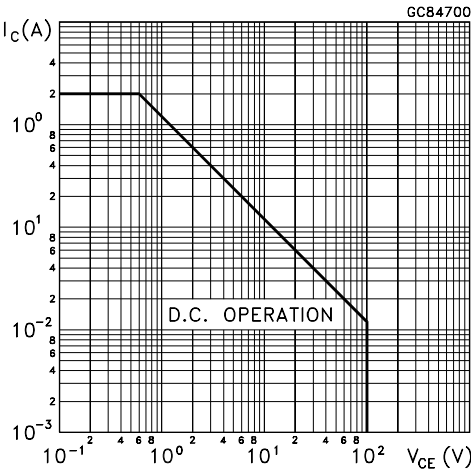
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	104	°C/W
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ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

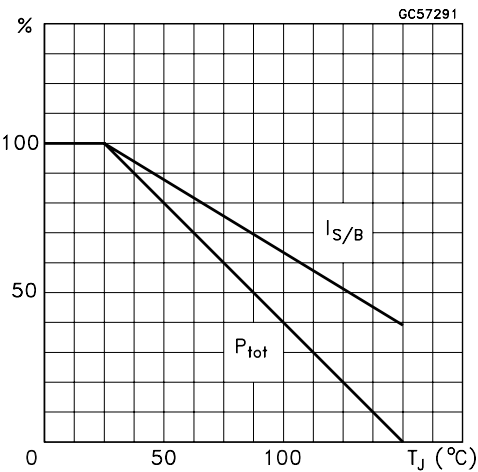
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 50 V			2	mA
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 100 V			1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			2	mA
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 30 mA	100			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2 A      I <sub>B</sub> = 8 mA			2.5	V
V <sub>BE</sub> *	Base-Emitter Voltage	I <sub>C</sub> = 2 A      V <sub>CE</sub> = 4 V			2.8	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 1 A      V <sub>CE</sub> = 4 V I <sub>C</sub> = 2 A      V <sub>CE</sub> = 4 V	1000 500			

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

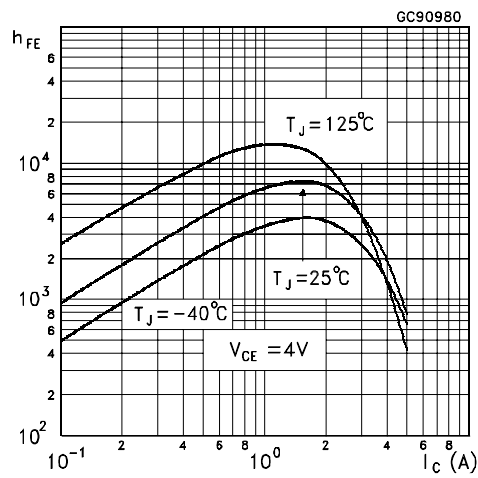
Safe Operating Area



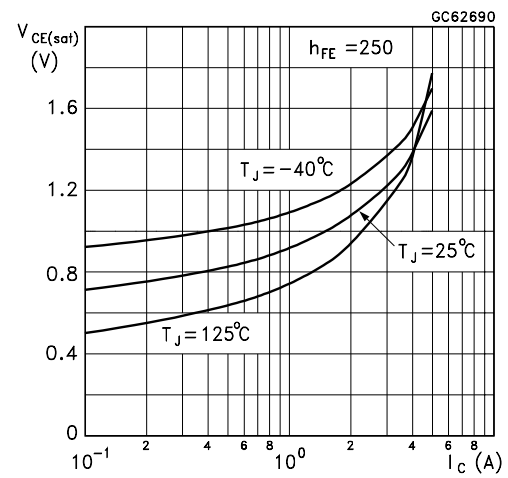
Derating Curve



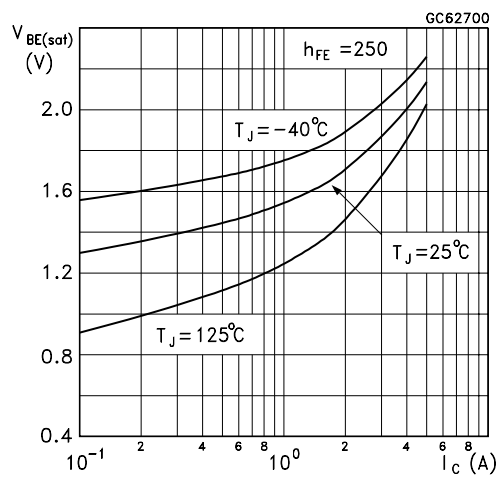
## DC Current Gain



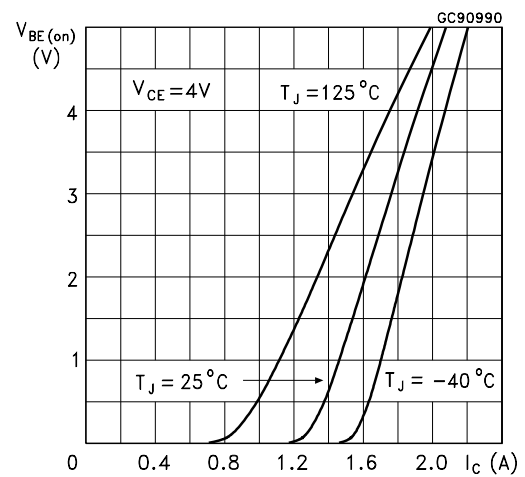
## Collector-Emitter Saturation Voltage



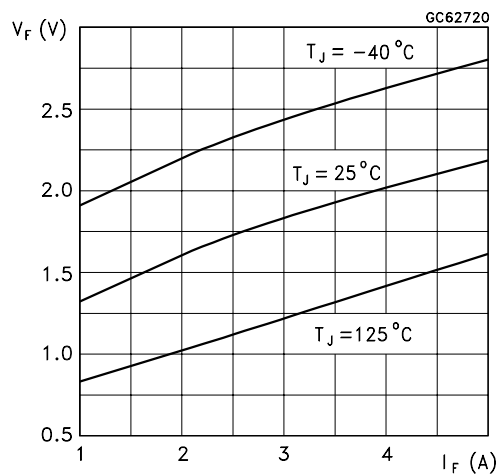
## Base-Emitter Saturation Voltage



## Base-Emitter On Voltage

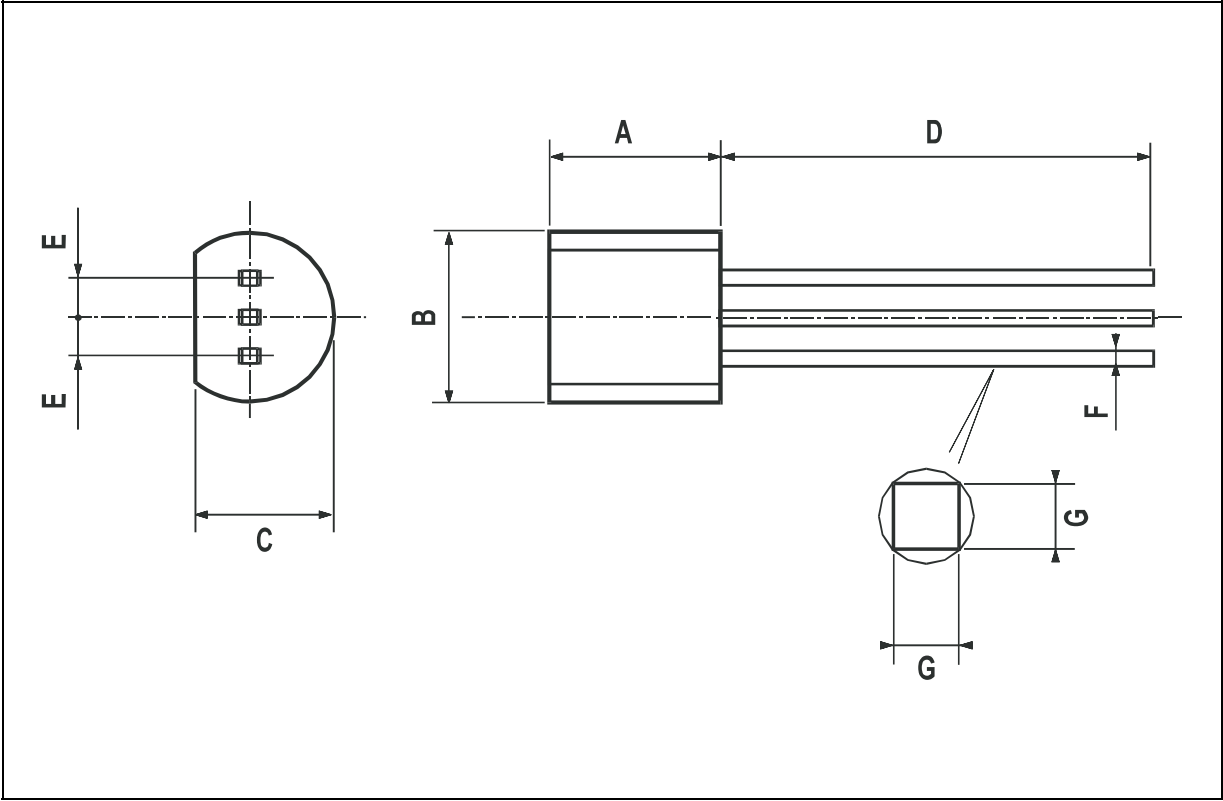


## Freewheel Diode Forward Voltage



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		



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