



# STX112

## SILICON NPN POWER DARLINGTON TRANSISTOR

- MONOLITHIC DARLINGTON CONFIGURATION
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

### APPLICATIONS

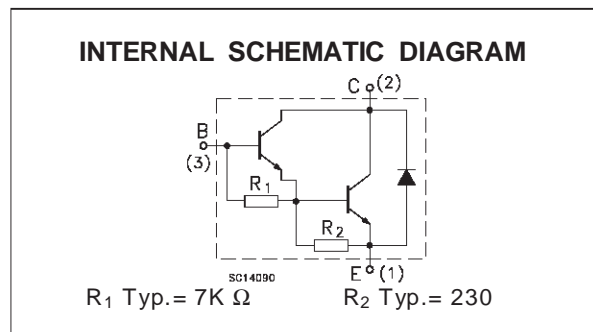
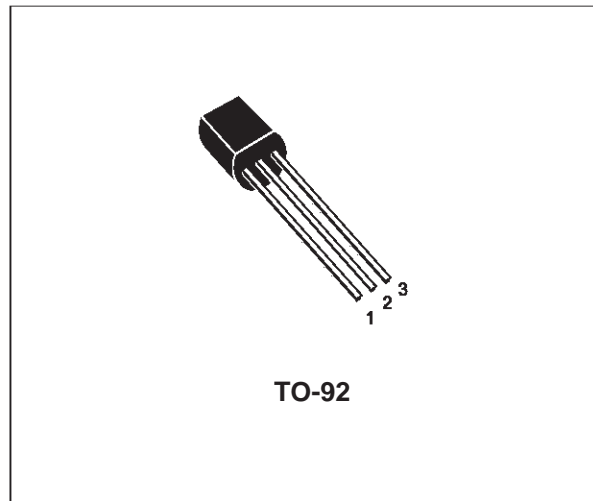
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The device is a silicon Epitaxial-Base NPN transistor in monolithic Darlingtong 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)



### 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 $T_{amb} = 25^\circ C$	1.2	W
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ C$
$T_j$	Max. Operating Junction Temperature	150	$^\circ C$

# STX112

## THERMAL DATA

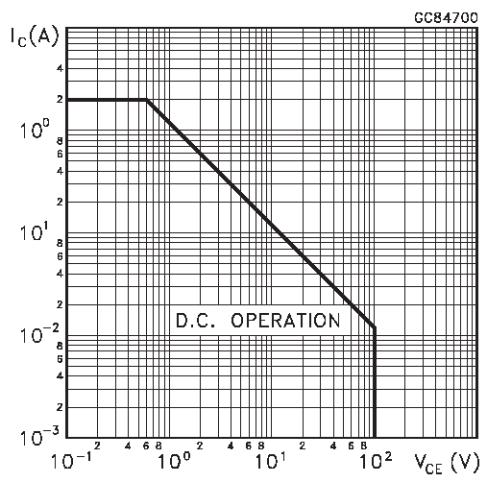
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	104	$^{\circ}\text{C}/\text{W}$
---------------	-------------------------------------	-----	-----	-----------------------------

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

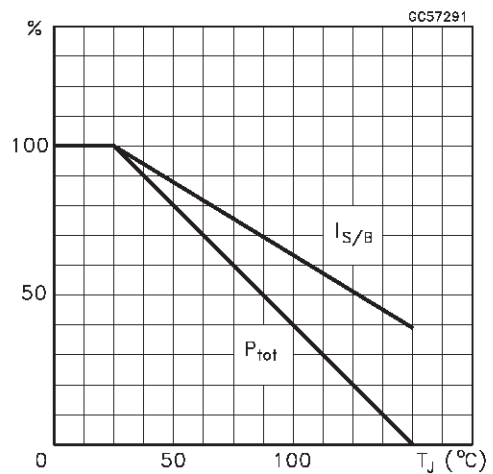
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = 50\text{ V}$			2	mA
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = 100\text{ V}$			1	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5\text{ V}$			2	mA
$V_{CEO(sus)}^*$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

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle 1.5 %

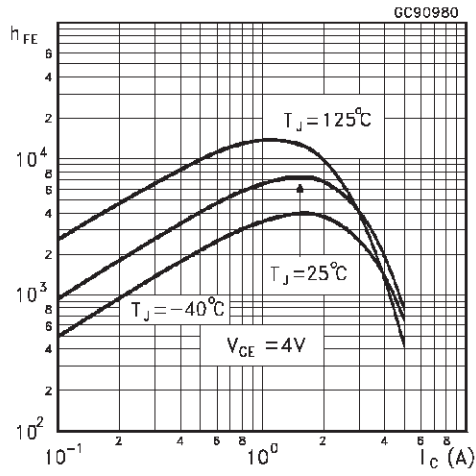
Safe Operating Area



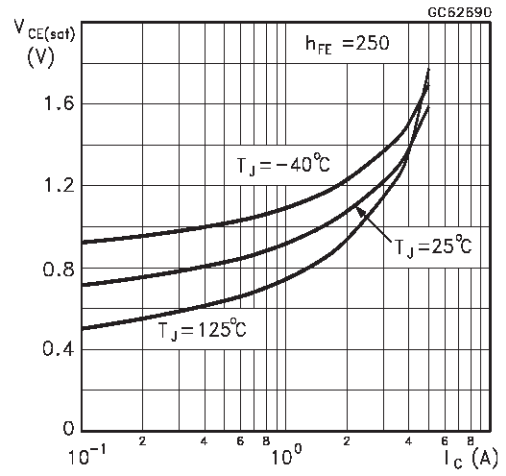
Derating Curve



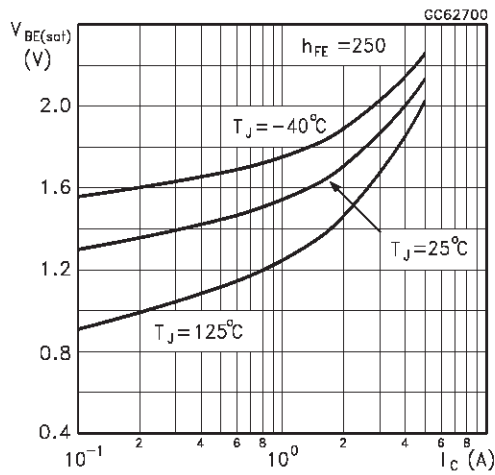
DC Current Gain



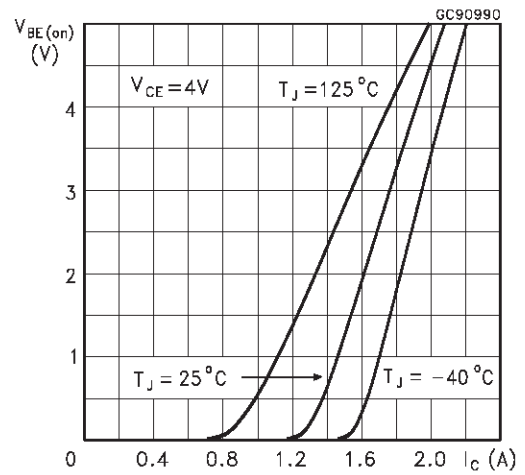
Collector-Emitter Saturation Voltage



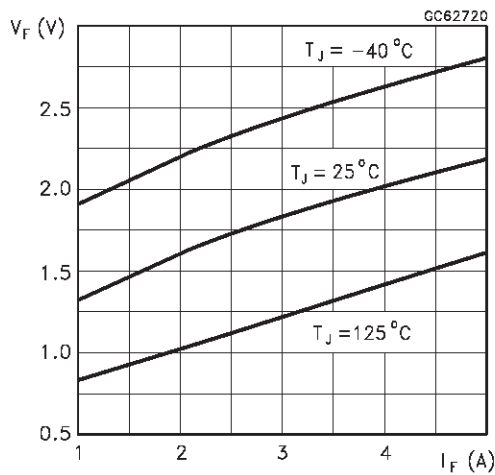
Base-Emitter Saturation Voltage



Base-Emitter On Voltage

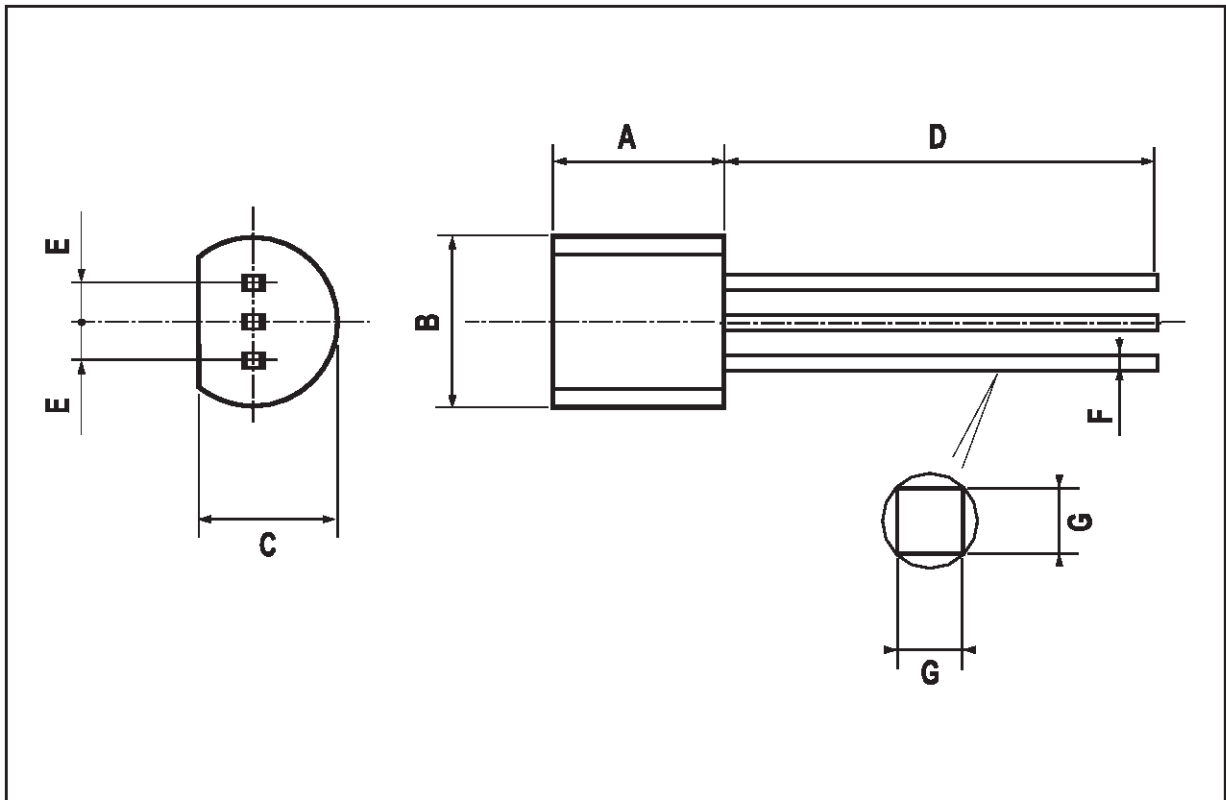


Freewheel Diode Forward Voltage



**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		



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

© 2000 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>

