



STX112

SILICON NPN POWER DARLINGTON TRANSISTOR

- MONOLITHIC DARLINGTON CONFIGURATION
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

APPLICATIONS

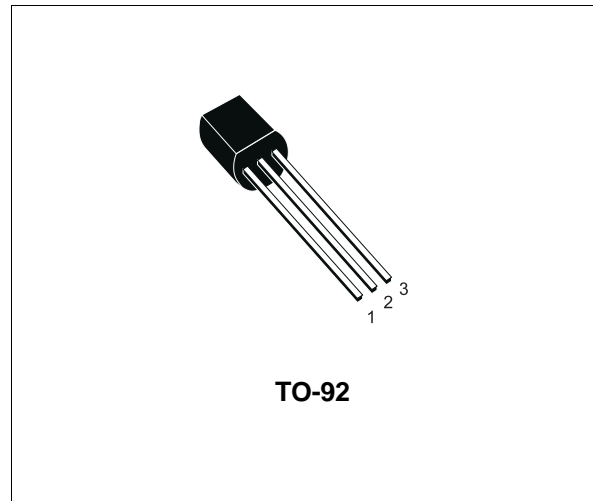
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

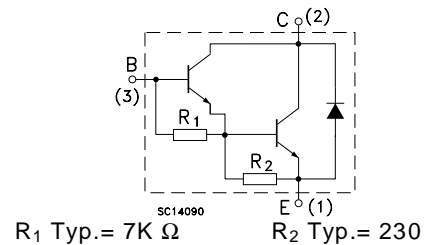
The device is a silicon Epitaxial-Base NPN transistor in monolithic Darlington configuration mounted in TO-92 plastic package. It is intended for use in linear and switching applications.

Ordering codes:

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



INTERNAL SCHEMATIC DIAGRAM



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

STX112

THERMAL DATA

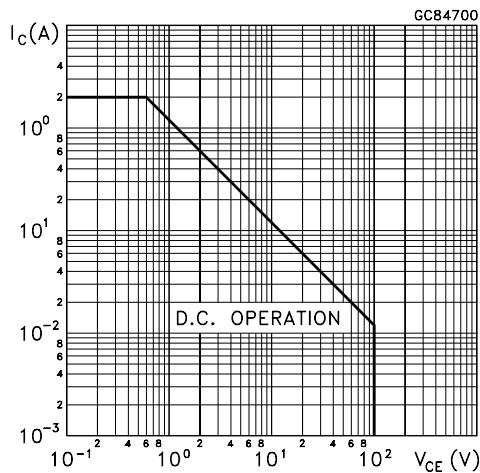
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	104	$^{\circ}\text{C}/\text{W}$
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

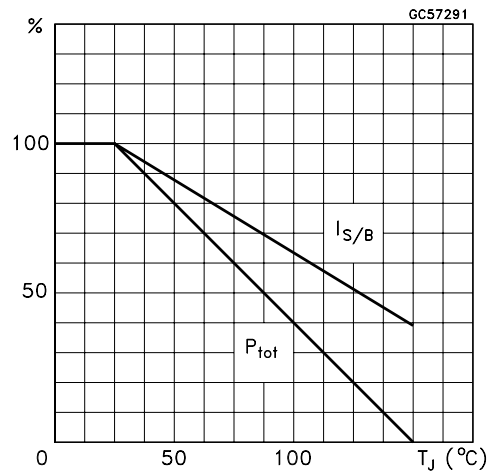
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 50\text{ V}$			2	mA
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 100\text{ V}$			1	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter 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 μs , duty cycle 1.5 %

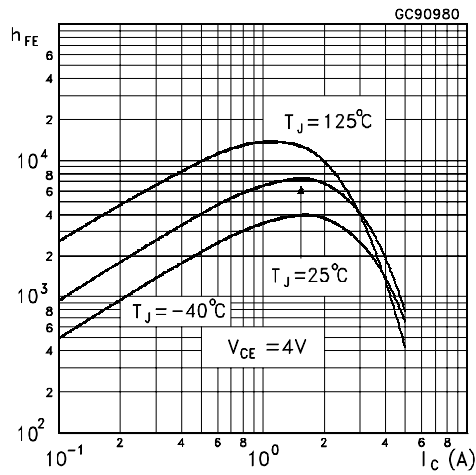
Safe Operating Area



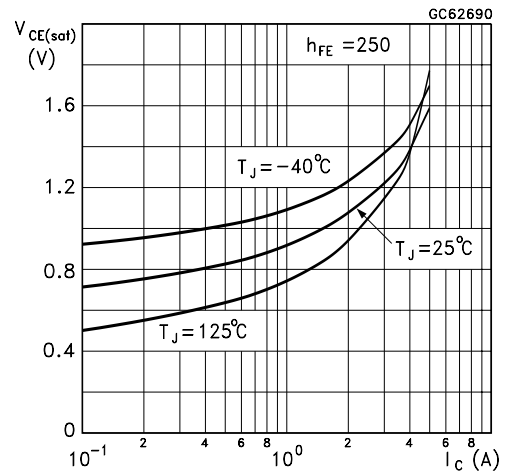
Derating Curve



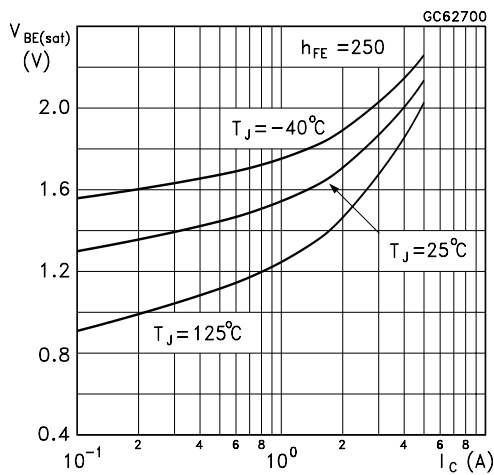
DC Current Gain



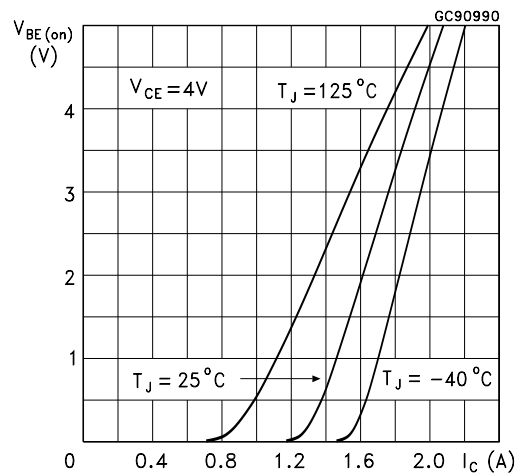
Collector-Emitter Saturation Voltage



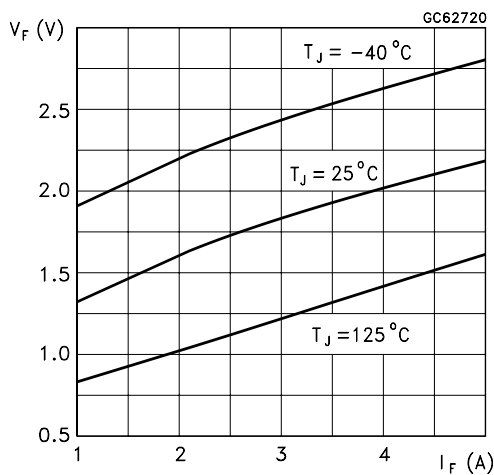
Base-Emitter Saturation Voltage



Base-Emitter On Voltage

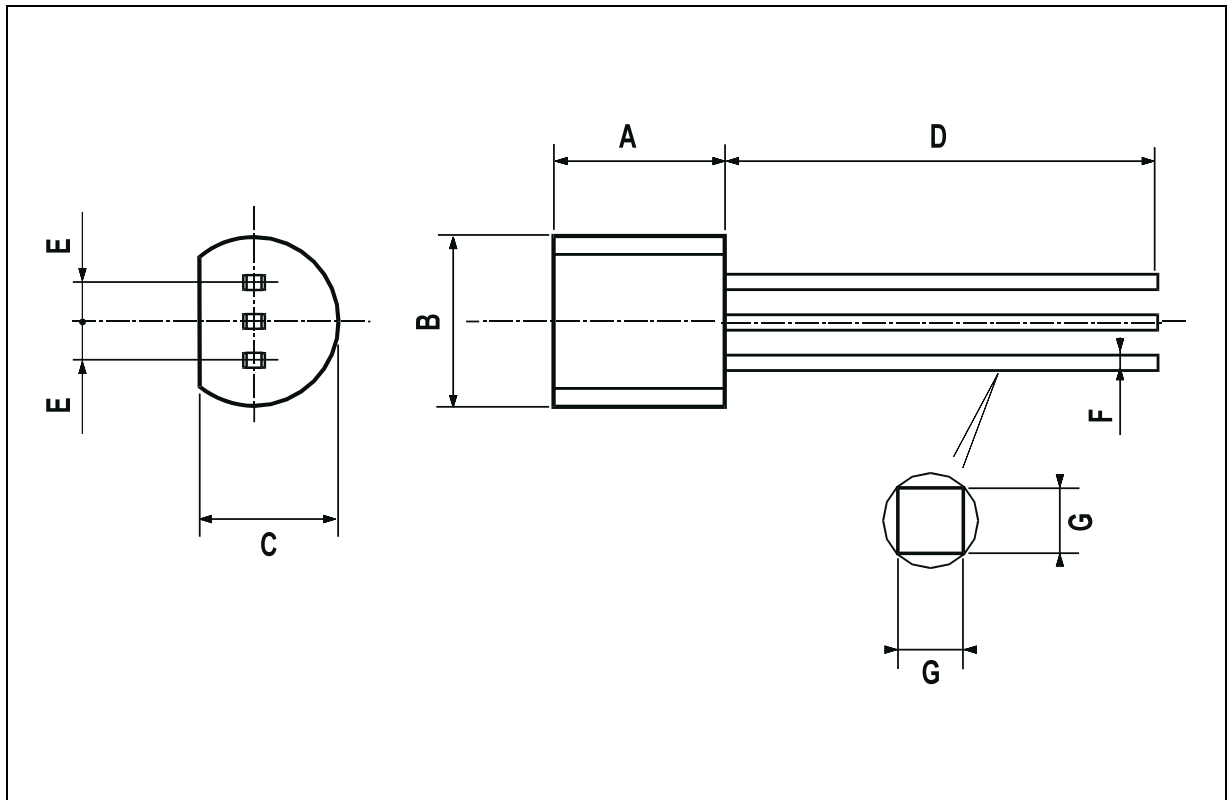


Freewheel Diode Forward Voltage



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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