

MS122G

Complementary power Darlington transistors

General Description

The devices are manufactured in planar technology with “base island” layout and monolithic Darlington configuration. The resulting transistors show exceptional high gain performance coupled with very low saturation voltage

Features

- Low collector-emitter saturation voltage
- Integrated antiparallel collector-emitter diode

Device summary

Order codes	Marking	Polarity	Package	Packaging
MS122G	M122G	NPN	DPAK	Tape and reel
MS127G	M127G	PNP		

Electrical ratings

Symbol	Parameter	Value	Units
V_{CBO}	Collector-base voltage ($I_E = 0$)	100	V
V_{CEO}	Collector-base voltage ($I_B = 0$)	100	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	5	V
I_C	Collector current	8	A
I_{CM}	Collector peak current	16	A
I_B	Base current	0.12	A
P_{TOT}	Total dissipation at $T_{case} = 25^\circ C$	20	W
T_{STG}	Storage Temperature	-65 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	150	$^\circ C$

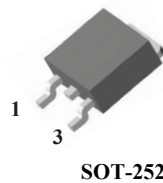
Product Summary

VCBO	IC
100V	8A

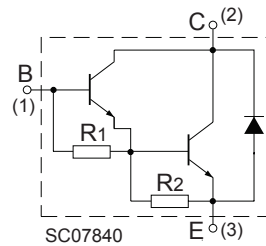
Applications

- General purpose linear and switching

SOT-252 Pin Configuration

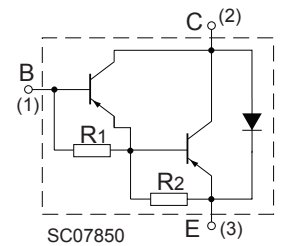


SOT-252



SC07840

NPN: $R_1 = 7K\Omega$
 $R_2 = 70\Omega$



SC07850

PNP: $R_1 = 16K\Omega$
 $R_2 = 60\Omega$

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Thermal data

Symbol	Parameter	Value	Unit
R_{thj-c}	Thermal resistance junction-case max.	6.25	$^{\circ}C/W$

Electrical Characteristics ($T_J=25^{\circ}C$, unless otherwise noted)

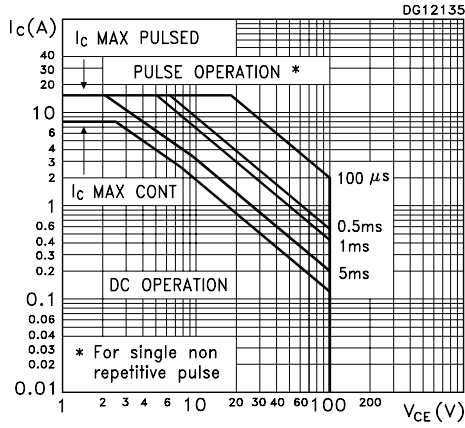
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current ($I_E = 0$)	$V_{CB} = 100V$	---	---	10	μA
I_{CEO}	Collector cut-off current ($I_B = 0$)	$V_{CE} = 50V$	---	---	10	μA
I_{EBO}	Emitter cut-off current ($I_C = 0$)	$V_{EB} = 5V$	---	---	2	mA
$V_{CEO(sus)}^{(1)}$	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 30mA$	100	---	---	V
$V_{CE(sat)}^{(1)}$	Collector-emitter sustaining voltage	$I_C = 4A$ $I_B = 16mA$ $I_C = 8A$ $I_B = 80mA$	---	---	2 4	V V
$V_{BE(sat)}^{(1)}$	Base-emitter saturation voltage	$I_C = 8A$ $I_B = 80mA$	---	---	4.5	V
$V_{BE(on)}^{(1)}$	Base-emitter on voltage	$I_C = 4A$ $V_{CE} = 4V$	---	---	2.8	V
h_{FE}	DC current gain	$I_C = 4A$ $V_{CE} = 4V$ $I_C = 2A$ $V_{CE} = 4V$	1000 100	---	8000 ---	

Note (1) Pulsed duration = 300 μ s, duty cycle \leq 1.5%

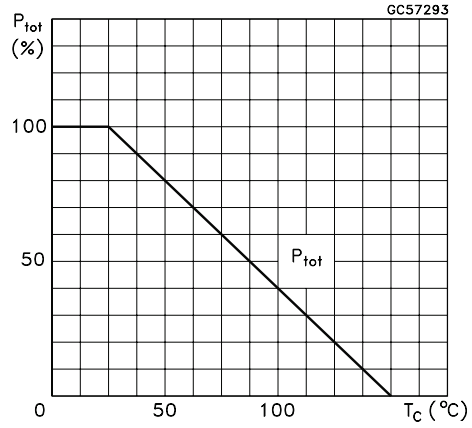
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Electrical characteristic (curves)

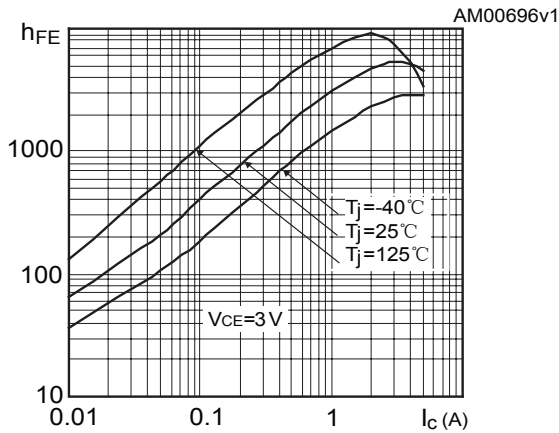
Safe operating area



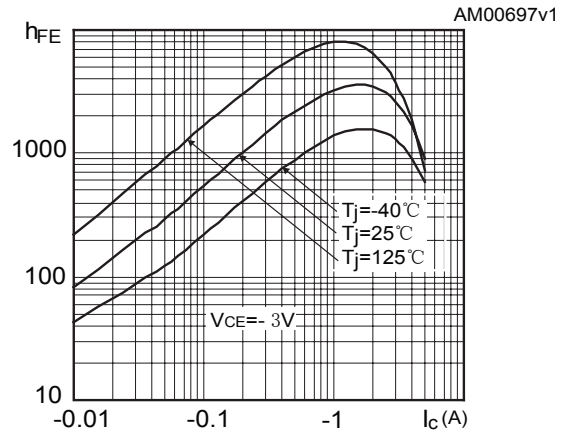
Derating curve



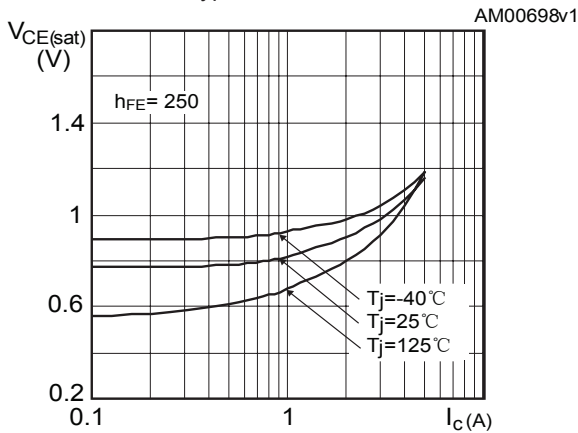
DC current gain for NPN type



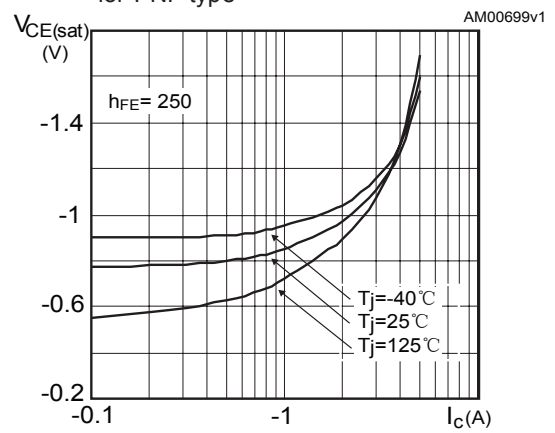
DC current gain for PNP type



Collector-emitter saturation voltage for NPN type



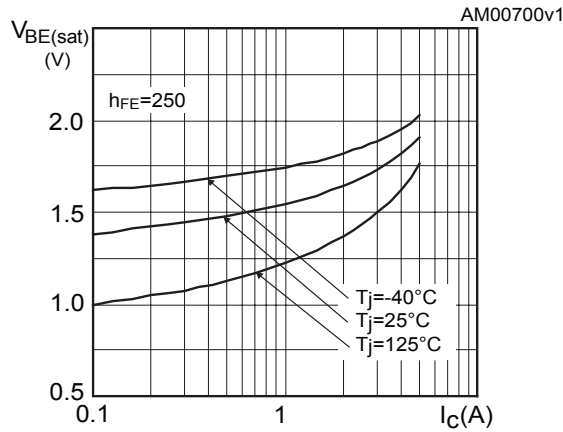
Collector-emitter saturation voltage for PNP type



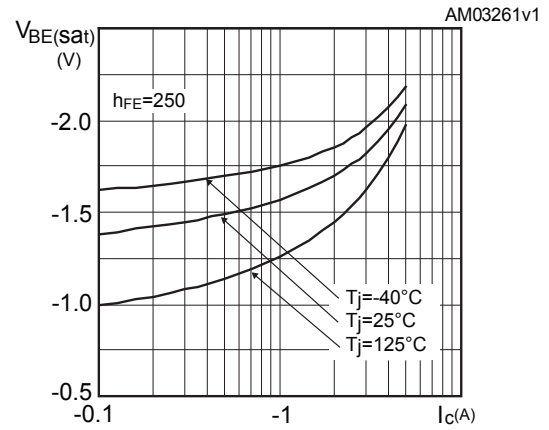
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Electrical characteristic (curves)

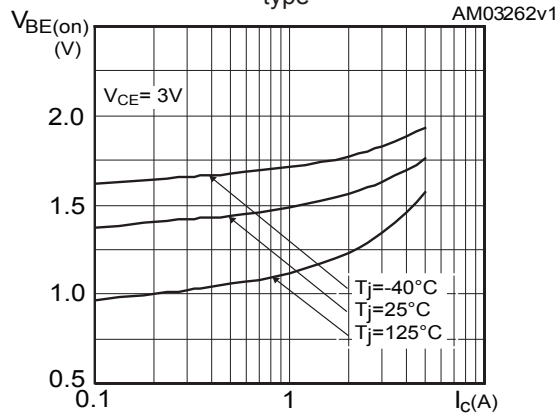
Base-emitter saturation voltage for NPN type



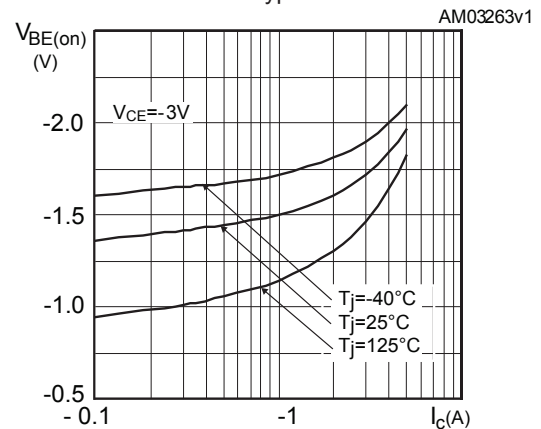
Base-emitter saturation voltage for PNP type



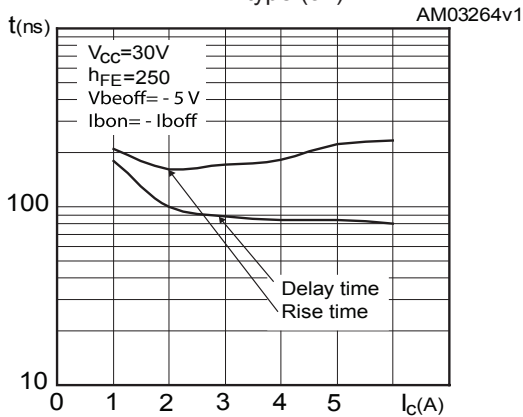
Base-emitter on voltage for NPN type



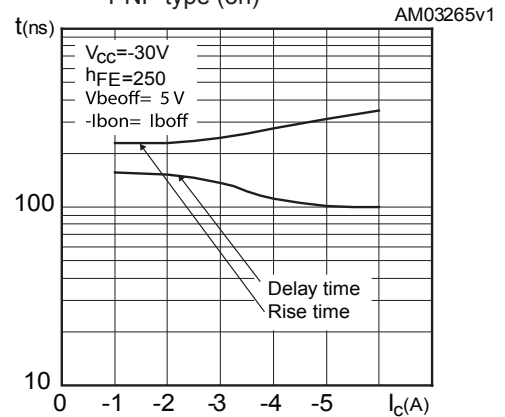
Base-emitter on voltage for PNP type



Resistive load switching times for NPN type (on)



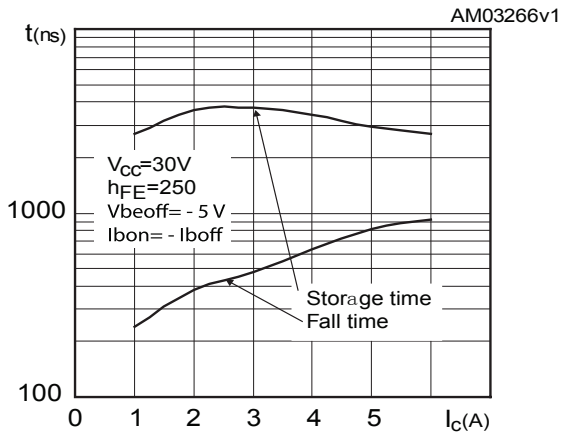
Resistive load switching times for PNP type (on)



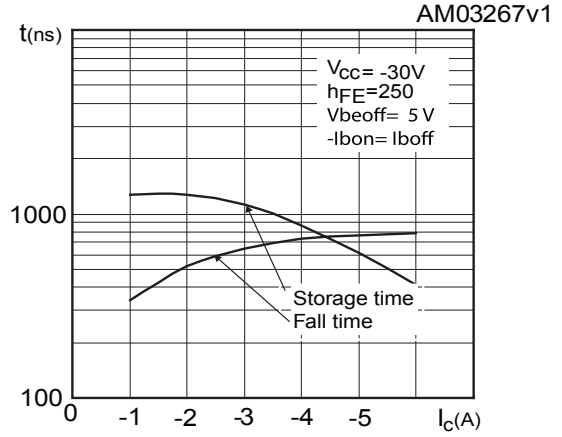
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Electrical characteristic (curves)

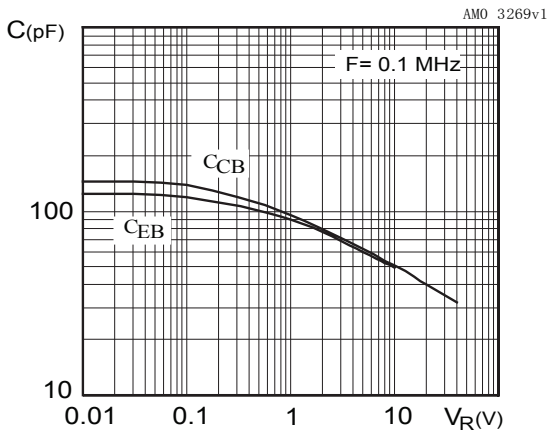
Resistive load switching times for NPN type (off)



Resistive load switching times for PNP type (off)



Capacitances for NPN type



Capacitances for NPN type

