

MPSA12
MPSA13
MPSA14

SILICON
NPN DARLINGTON TRANSISTORS



TO-92 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR MPSA12 series devices are silicon NPN Darlington transistors, manufactured by the epitaxial planar process, designed for applications requiring extremely high gain.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL	MPSA12	MPSA13	MPSA14	UNITS
V_{CBO}	-	30	30	V
V_{CES}	20	30	30	V
V_{EBO}		10		V
I_C		500		mA
P_D		625		mW
T_J, T_{stg}		-65 to +150		$^\circ\text{C}$
Θ_{JA}		200		$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$)

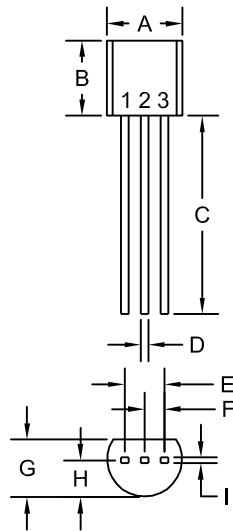
SYMBOL	TEST CONDITIONS	MPSA12		MPSA13		MPSA14		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=15\text{V}$	-	100	-	-	-	-	nA
I_{CBO}	$V_{CB}=30\text{V}$	-	-	-	100	-	100	nA
I_{CES}	$V_{CE}=15\text{V}$	-	100	-	-	-	-	nA
I_{EBO}	$V_{EB}=10\text{V}$	-	100	-	100	-	100	nA
BV_{CES}	$I_C=100\mu\text{A}$	20	-	30	-	30	-	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=10\mu\text{A}$	-	1.0	-	-	-	-	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=100\mu\text{A}$	-	-	-	1.5	-	1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_B=10\text{mA}$	-	1.4	-	-	-	-	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_B=100\text{mA}$	-	-	-	2.0	-	2.0	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	20K	-	5K	-	10K	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	-	-	10K	-	20K	-	
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	-	-	125	-	125	-	MHz

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TO-92 CASE - MECHANICAL OUTLINE



R1

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.500	-	12.70	-
D	0.016	0.022	0.41	0.56
E	0.100		2.54	
F	0.050		1.27	
G	0.125	0.165	3.18	4.19
H	0.080	0.105	2.03	2.67
I	0.015		0.38	

TO-92 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING:
FULL PART NUMBER

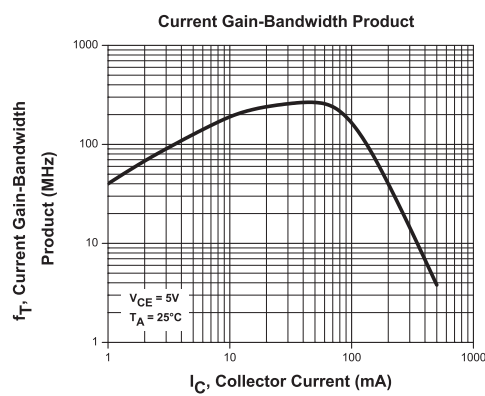
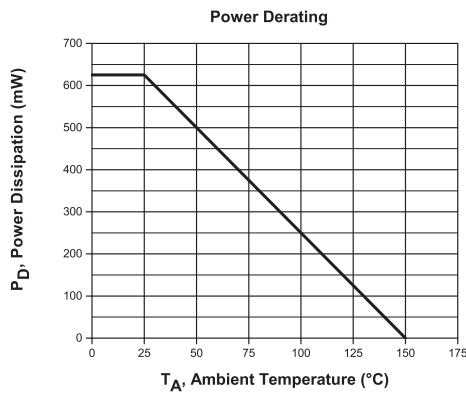
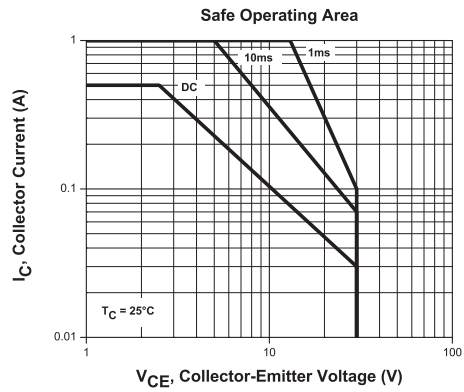
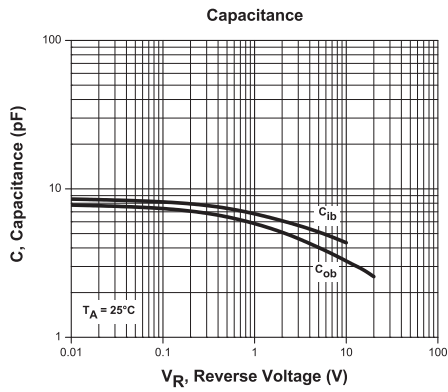
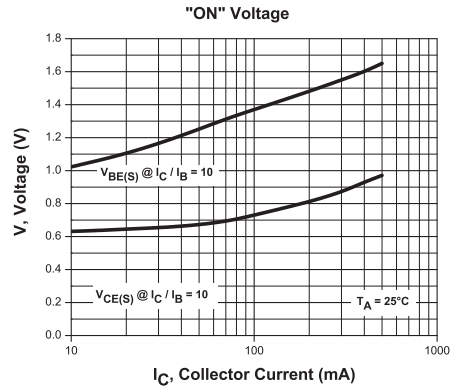
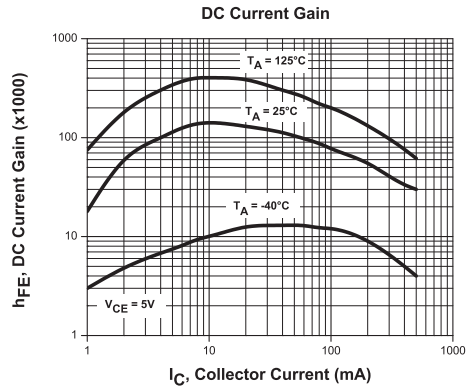
R1 (18-March 2014)

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TYPICAL ELECTRICAL CHARACTERISTICS



R1 (18-March 2014)



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- Package details
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- Application and design sample kits
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1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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