

MPSA12  
MPSA13  
MPSA14

SILICON  
NPN DARLINGTON TRANSISTORS



TO-92 CASE



[www.centrasemi.com](http://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		$^\circ\text{C}$
$\Theta_{JA}$		200		$^\circ\text{C}/\text{W}$

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

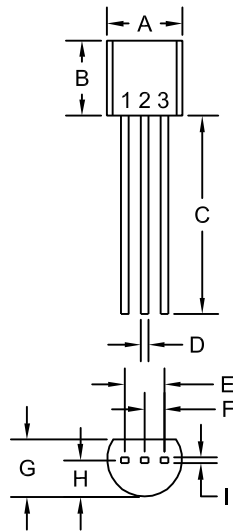
SYMBOL	TEST CONDITIONS	MPSA12		MPSA13		MPSA14		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$I_{CBO}$	$V_{CB}=15\text{V}$	-	100	-	-	-	-	nA
$I_{CBO}$	$V_{CB}=30\text{V}$	-	-	-	100	-	100	nA
$I_{CES}$	$V_{CE}=15\text{V}$	-	100	-	-	-	-	nA
$I_{EBO}$	$V_{EB}=10\text{V}$	-	100	-	100	-	100	nA
$BV_{CES}$	$I_C=100\mu\text{A}$	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

R1 (18-March 2014)

**MPSA12**  
**MPSA13**  
**MPSA14**  
  
**SILICON**  
**NPN DARLINGTON TRANSISTORS**



**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**

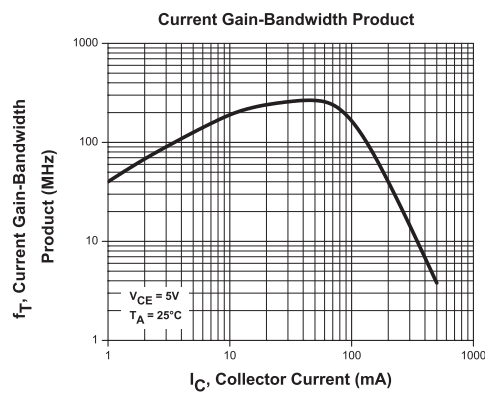
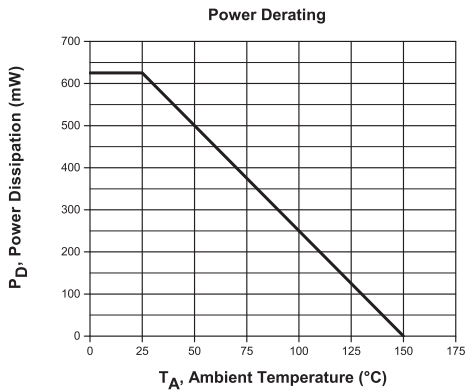
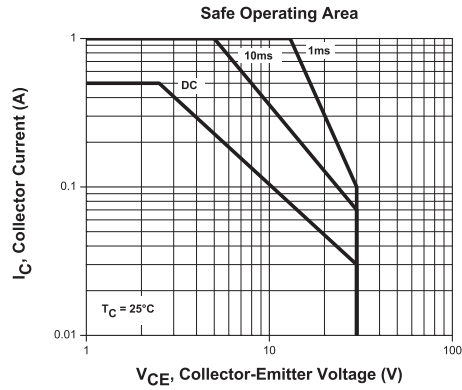
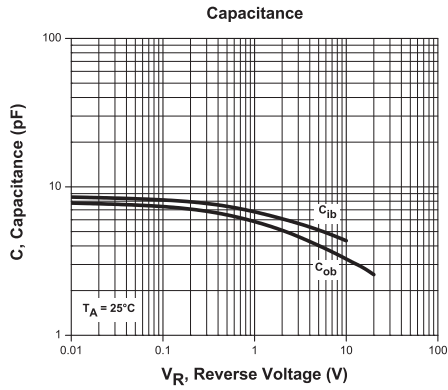
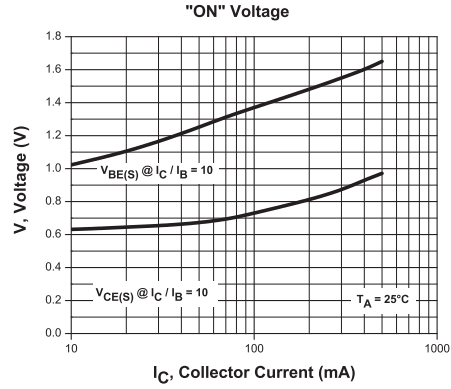
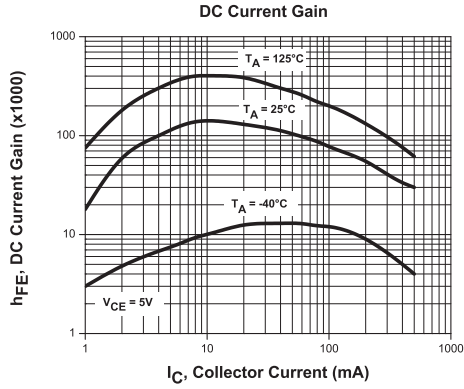
R1 (18-March 2014)

MPSA12  
MPSA13  
MPSA14

SILICON  
NPN DARLINGTON TRANSISTORS



TYPICAL ELECTRICAL CHARACTERISTICS



R1 (18-March 2014)