MPSA44G Datasheet

DiGi Electronics Part Number	MPSA44G-DG
Manufacturer	onsemi
Manufacturer Product Number	MPSA44G
Description	TRANS NPN 400V 0.3A TO92
Detailed Description	Bipolar (BJT) Transistor NPN 400 V 300 mA 625 mW Through Hole TO-92 (TO-226)

https://www.DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MPSA44G	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	300 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
400 V	750mV @ 5mA, 50mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
500nA	50 @ 10mA, 10V
Power - Max:	Frequency - Transition:
625 mW	-
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
TO-226-3, TO-92-3 Long Body	TO-92 (TO-226)
Base Product Number:	
MPSA44	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	8541.21.0095

ON Semiconductor

Is Now

To learn more about onsemi™, please visit our website at
www.onsemi.com

MPSA44

Preferred Device

High Voltage Transistor

NPN Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available*

MAXIMUM RATINGS

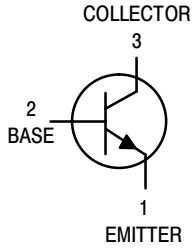
Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	400	Vdc
Collector−Base Voltage	V_{CBO}	500	Vdc
Emitter−Base Voltage	V_{EBO}	6.0	Vdc
Collector Current − Continuous	I_C	300	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

THERMAL CHARACTERISTICS

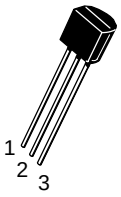
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	83.3	°C/W

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

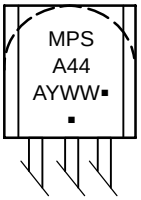
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



MARKING DIAGRAM



TO−92
(TO−226AA)
CASE 29−11
STYLE 1



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

MPSA44

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Breakdown Voltage (Note 1) (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	400	−	Vdc
Collector−Emitter Breakdown Voltage (I_C = 100 μAdc, V_{BE} = 0)	$V_{(BR)CES}$	500	−	Vdc
Collector−Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	500	−	Vdc
Emitter−Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	$V_{(BR)EBO}$	6.0	−	Vdc
Collector Cutoff Current (V_{CB} = 400 Vdc, I_E = 0)	I_{CBO}	−	0.1	μAdc
Collector Cutoff Current (V_{CE} = 400 Vdc, V_{BE} = 0)	I_{CES}	−	500	nAdc
Emitter Cutoff Current (V_{EB} = 4.0 Vdc, I_C = 0)	I_{EBO}	−	0.1	μAdc
ON CHARACTERISTICS (Note 1)				
DC Current Gain (Note 1) (I_C = 1.0 mAdc, V_{CE} = 10 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 50 mAdc, V_{CE} = 10 Vdc) (I_C = 100 mAdc, V_{CE} = 10 Vdc)	h_{FE}	 40 50 45 40	 − 200 − −	−
Collector−Emitter Saturation Voltage (Note 1) (I_C = 1.0 mAdc, I_B = 0.1 mAdc) (I_C = 10 mAdc, I_B = 1.0 mAdc) (I_C = 50 mAdc, I_B = 5.0 mAdc)	$V_{CE(sat)}$	 − − −	 0.4 0.5 0.75	Vdc
Base−Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{BE(sat)}$	−	0.75	Vdc
SMALL−SIGNAL CHARACTERISTICS				
Output Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	−	7.0	pF
Input Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ibo}	−	130	pF
Small−Signal Current Gain (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	h_{fe}	1.0	−	−

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Package	Shipping†
MPSA44	TO−92	5000 Units / Box
MPSA44G	TO−92 (Pb−Free)	5000 Units / Box
MPSA44RL1	TO−92	2000 / Tape & Reel
MPSA44RL1G	TO−92 (Pb−Free)	2000 / Tape & Reel
MPSA44RLRA	TO−92	2000 / Tape & Reel
MPSA44RLRAG	TO−92 (Pb−Free)	2000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

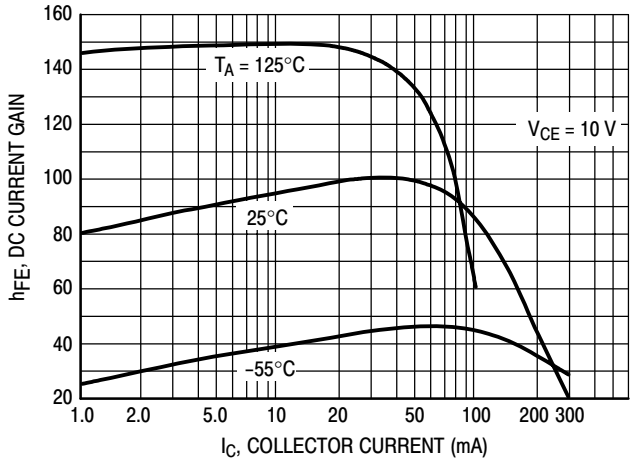


Figure 1. DC Current Gain

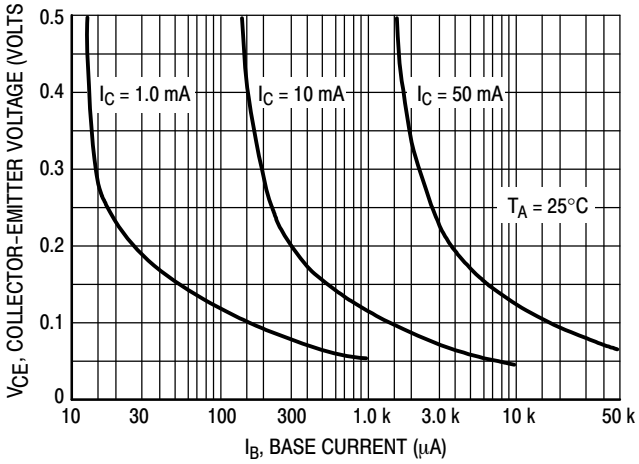


Figure 2. Collector Saturation Region

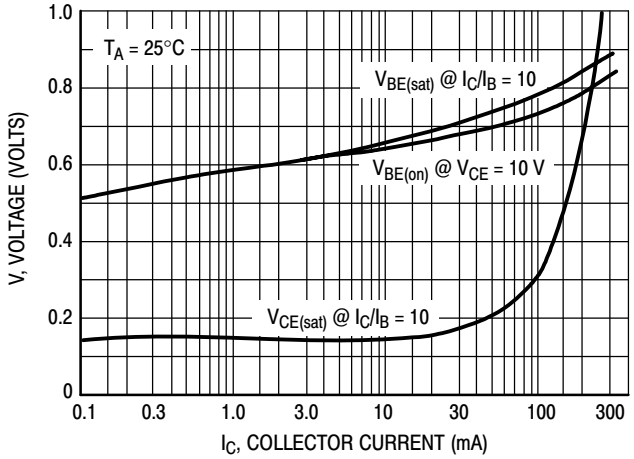


Figure 3. “On” Voltages

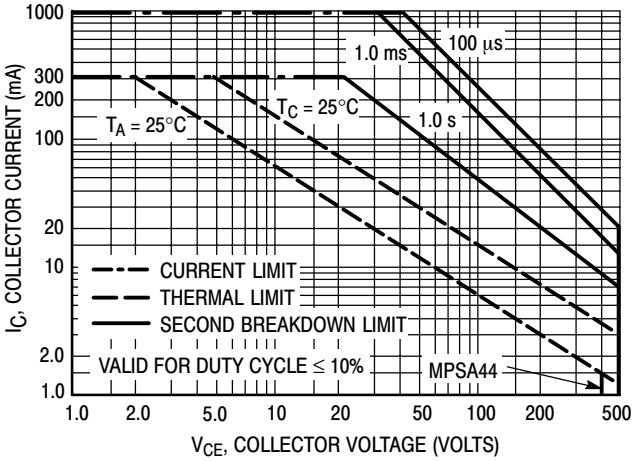


Figure 4. Active Region − Safe Operating Area

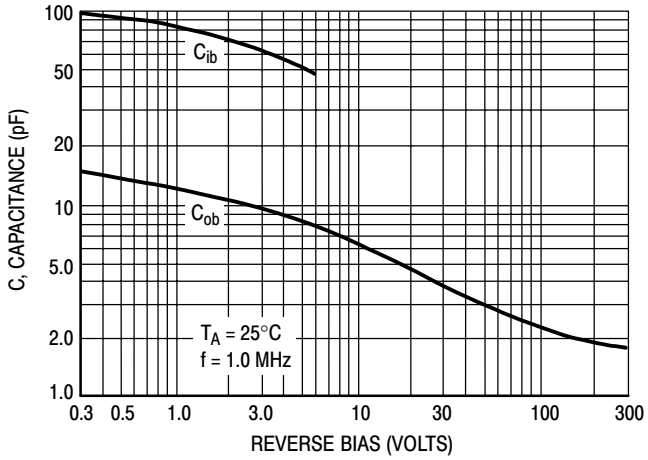


Figure 5. Capacitance

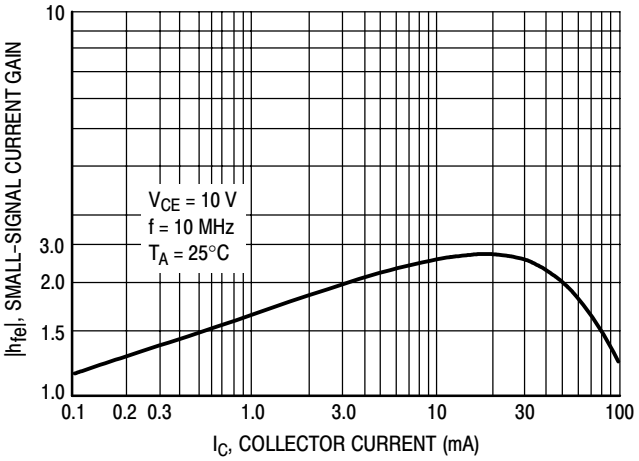


Figure 6. High Frequency Current Gain

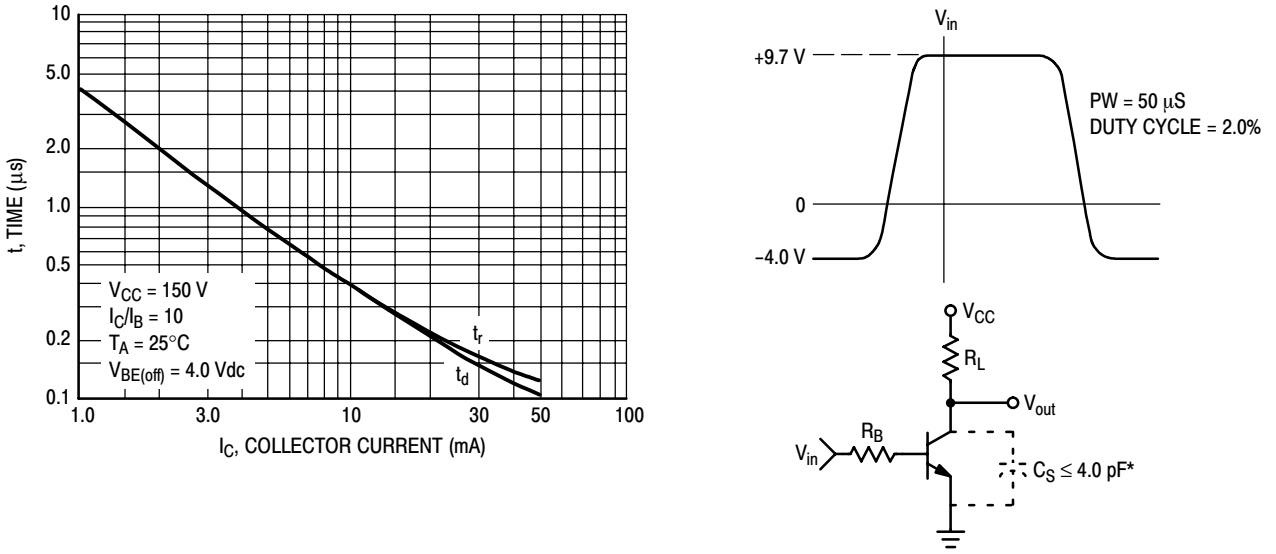


Figure 7. Turn−On Switching Times and Test Circuit

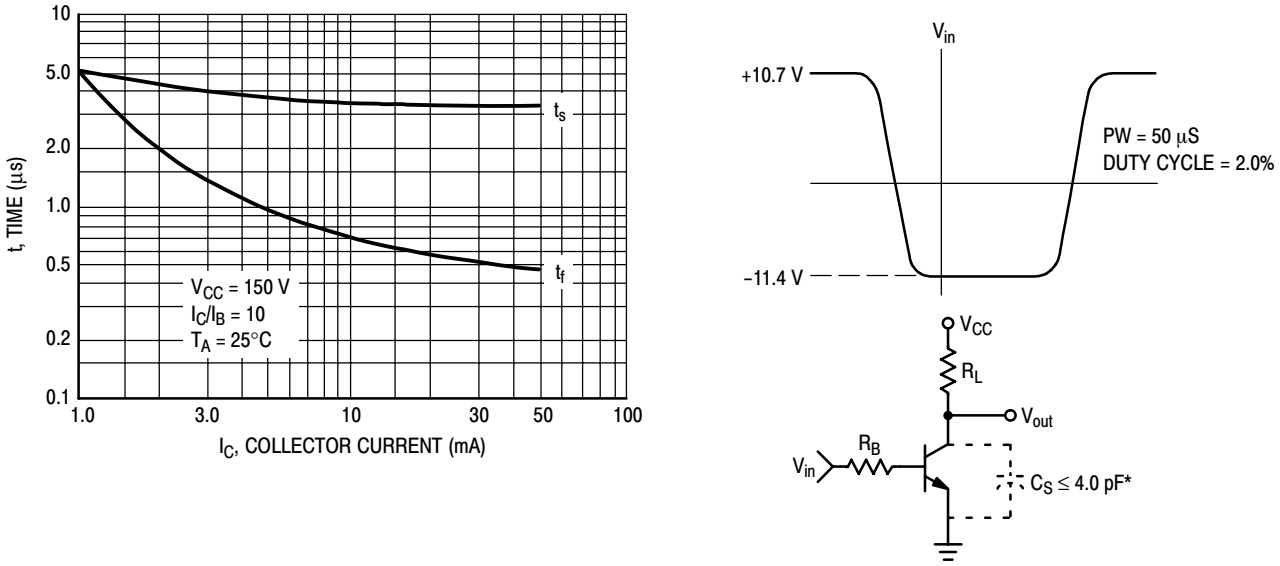


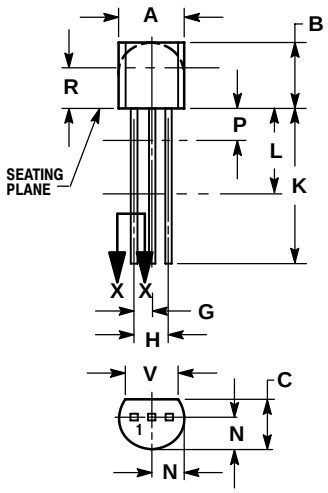
Figure 8. Turn−Off Switching Times and Test Circuit

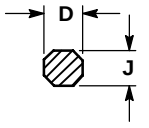
*Total Shunt Capacitance or Test Jig and Connectors.

MPSA44

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AL





SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5773−3850

ON Semiconductor Website: **www.onsemi.com**

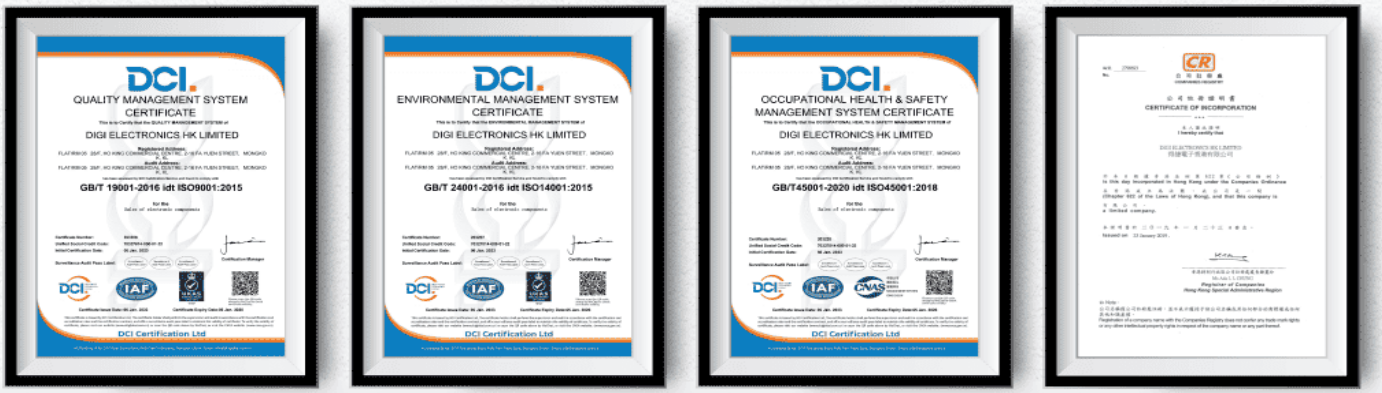
Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative

MPSA44/D

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.