

MPSW92

One Watt High Voltage Transistor

PNP Silicon

Features

- Pb-Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector – Emitter Voltage	V_{CEO}	-300	Vdc
Collector – Base Voltage	V_{CBO}	-300	Vdc
Emitter – Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current – Continuous	I_C	-500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0	W mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	2.5 20	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

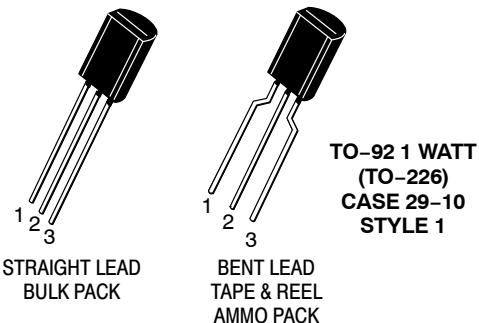
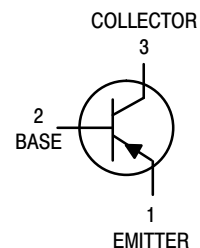
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	125	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	$^\circ\text{C}/\text{W}$

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.

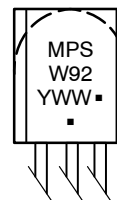


ON Semiconductor®

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MARKING DIAGRAM



MPSW45x = Device Code
 x = 45A Devices
 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.

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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 mA _{dc} , I _B = 0)	V _{(BR)CEO}	-300	-	V _{dc}
Collector–Base Breakdown Voltage (I _C = -100 μA _{dc} , I _E = 0)	V _{(BR)CBO}	-300	-	V _{dc}
Emitter–Base Breakdown Voltage (I _E = -100 μA _{dc} , I _C = 0)	V _{(BR)EBO}	-5.0	-	V _{dc}
Collector Cutoff Current (V _{CB} = -200 V _{dc} , I _E = 0)	I _{CBO}	-	-0.25	μA _{dc}
Emitter Cutoff Current (V _{EB} = -3.0 V _{dc} , I _C = 0)	I _{EBO}	-	-0.1	μA _{dc}

ON CHARACTERISTICS (Note 1)

DC Current Gain (I _C = -1.0 mA _{dc} , V _{CE} = -10 V _{dc}) (I _C = -10 mA _{dc} , V _{CE} = -10 V _{dc}) (I _C = -30 mA _{dc} , V _{CE} = -10 V _{dc})	h _{FE}	25 40 25	- - -	-
Collector–Emitter Saturation Voltage (I _C = -20 mA _{dc} , I _B = -2.0 mA _{dc})	V _{CE(sat)}	-	-0.5	V _{dc}
Base–Emitter Saturation Voltage (I _C = -20 mA _{dc} , I _B = -2.0 mA _{dc})	V _{BE(sat)}	-	-0.9	V _{dc}

SMALL–SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product (I _C = -10 mA _{dc} , V _{CE} = -20 V _{dc} , f = 20 MHz)	f _T	50	-	MHz
Collector–Base Capacitance (V _{CB} = -20 V _{dc} , I _E = 0, f = 1.0 MHz)	C _{cb}	-	6.0	pF

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

ORDERING INFORMATION

Device	Package	Shipping†
MPSW92	TO-92	5000 Units / Box
MPSW92G	TO-92 (Pb-Free)	5000 Units / Box
MPSW92RLREG	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.

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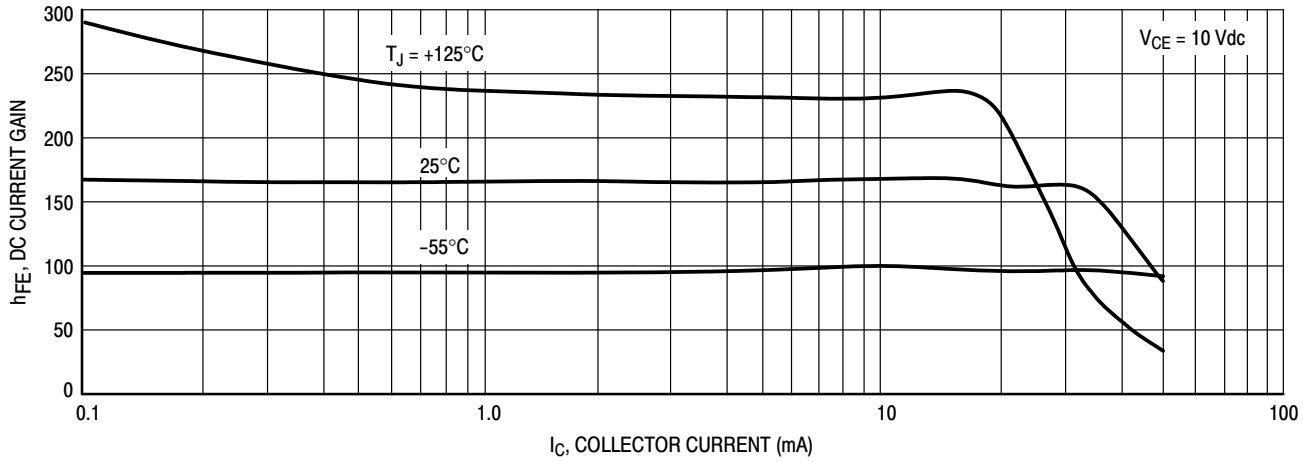


Figure 1. DC Current Gain

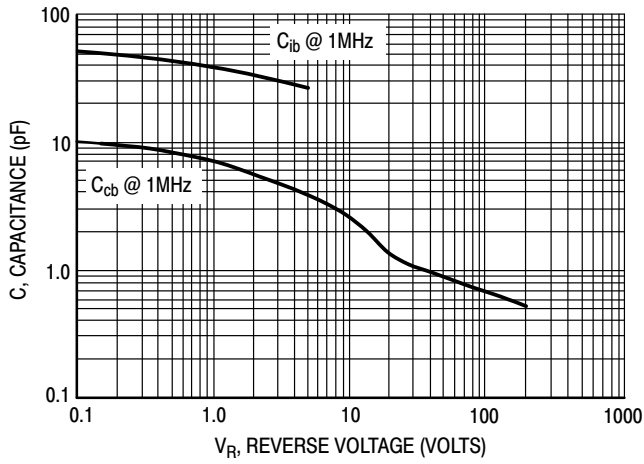


Figure 2. Capacitance

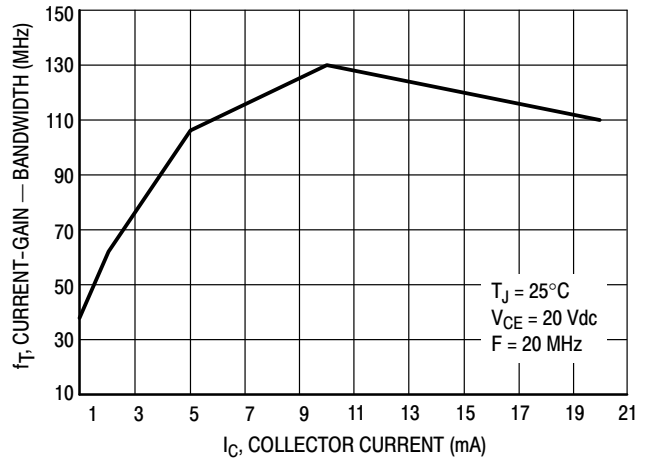


Figure 3. Current-Gain - Bandwidth

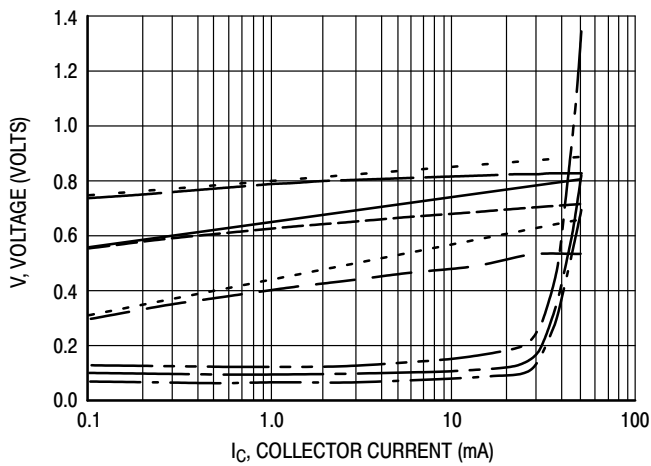


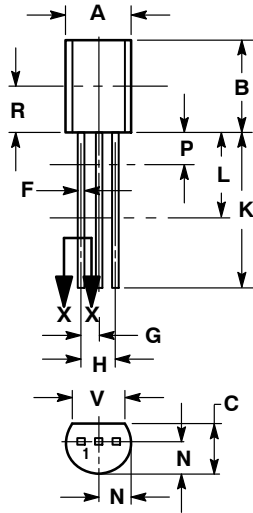
Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10$ V
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10$ V
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10$ V

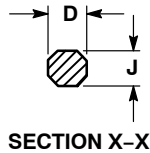
MPSW92

PACKAGE DIMENSIONS

TO-92 (TO-226) 1 WATT
CASE 29-10
ISSUE O



STRAIGHT LEAD
BULK PACK



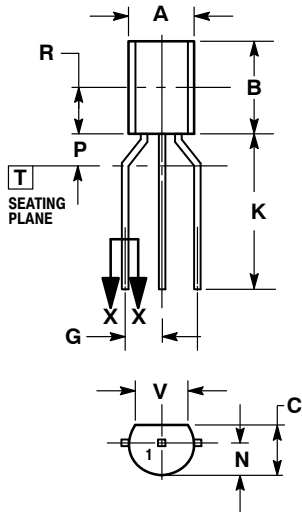
SECTION X-X

NOTES:

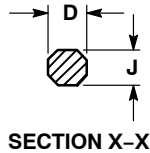
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN DIMENSIONS P AND L. DIMENSIONS D AND J APPLY BETWEEN DIMENSIONS L AND K MINIMUM. THE LEAD DIMENSIONS ARE UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.44	5.21
B	0.290	0.310	7.37	7.87
C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.46	0.53
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.018	0.024	0.46	0.61
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	0.135	---	3.43	---
V	0.135	---	3.43	---

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



BENT LEAD
TAPE & REEL
AMMO PACK



SECTION X-X

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
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DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.44	5.21
B	0.290	0.310	7.37	7.87
C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.46	0.53
G	0.094	0.102	2.40	2.80
J	0.018	0.024	0.46	0.61
K	0.500	---	12.70	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.135	---	3.43	---
V	0.135	---	3.43	---

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