

MPSA42, MPSA43

MPSA42 is a Preferred Device

High Voltage Transistors

NPN Silicon



ON Semiconductor™

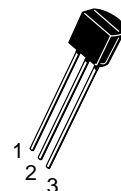
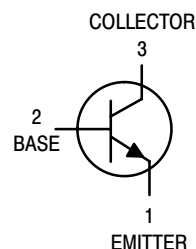
<http://onsemi.com>

MAXIMUM RATINGS

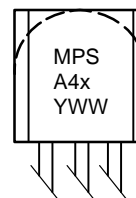
Rating	Symbol	Value	Unit
Collector–Emitter Voltage MPSA43 MPSA42	V_{CEO}	200 300	Vdc
Collector–Base Voltage MPSA43 MPSA42	V_{CBO}	200 300	Vdc
Emitter–Base Voltage	V_{EBO}	6.0	Vdc
Collector Current – Continuous	I_C	500	mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	Watts 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	$R_{\theta JA}$	200	$^\circ\text{C}/\text{mW}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{mW}$



MARKING DIAGRAM



MPSA4x = Specific Device Code

x = 2 or 3

Y = Year

W = Work Week

ORDERING INFORMATION

Device	Package	Shipping
MPSA42	TO-92	5000 Units/Box
MPSA42RLRA	TO-92	2000/Tape & Reel
MPSA42RLRE	TO-92	2000/Tape & Reel
MPSA42RLRF	TO-92	5000 Units/Box
MPSA42RLRM	TO-92	2000/Ammo Pack
MPSA42RLRP	TO-92	2000/Ammo Pack
MPSA43	TO-92	5000 Units/Box
MPSA43RLRA	TO-92	2000/Tape & Reel

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

MPSA42, MPSA43

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, I _B = 0)	MPSA42 MPSA43	V _{(BR)CEO}	300 200	– –	Vdc
Collector–Base Breakdown Voltage (I _C = 100 µA, I _E = 0)	MPSA42 MPSA43	V _{(BR)CBO}	300 200	– –	Vdc
Emitter–Base Breakdown Voltage (I _E = 100 µA, I _C = 0)		V _{(BR)EBO}	6.0	–	Vdc
Collector Cutoff Current (V _{CB} = 200 Vdc, I _E = 0) (V _{CB} = 160 Vdc, I _E = 0)	MPSA42 MPSA43	I _{CBO}	– –	0.1 0.1	µA
Emitter Cutoff Current (V _{EB} = 6.0 Vdc, I _C = 0) (V _{EB} = 4.0 Vdc, I _C = 0)	MPSA42 MPSA43	I _{EBO}	– –	0.1 0.1	µA

ON CHARACTERISTICS (Note 1.)

DC Current Gain (I _C = 1.0 mA, V _{CE} = 10 Vdc) (I _C = 10 mA, V _{CE} = 10 Vdc) (I _C = 30 mA, V _{CE} = 10 Vdc)		h _{FE}	25 40 40	– – –	–
Collector–Emitter Saturation Voltage (I _C = 20 mA, I _B = 2.0 mA)	MPSA42 MPSA43	V _{CE(sat)}	– –	0.5 0.4	Vdc
Base–Emitter Saturation Voltage (I _C = 20 mA, I _B = 2.0 mA)		V _{BE(sat)}	–	0.9	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product (I _C = 10 mA, V _{CE} = 20 Vdc, f = 100 MHz)		f _T	50	–	MHz
Collector–Base Capacitance (V _{CB} = 20 Vdc, I _E = 0, f = 1.0 MHz)	MPSA42 MPSA43	C _{cb}	– –	3.0 4.0	pF

1. Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2%.

MPSA42, MPSA43

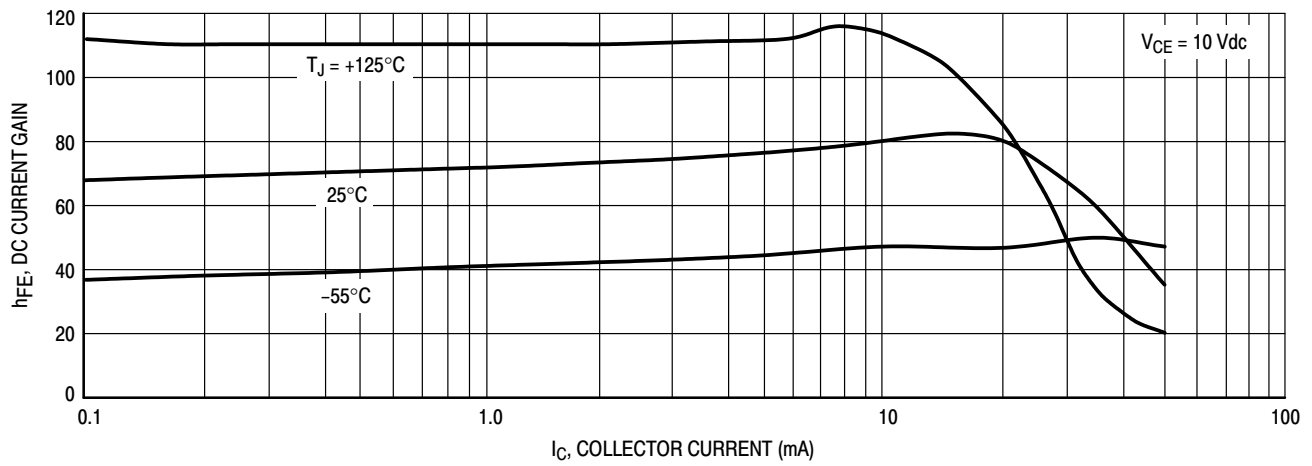


Figure 1. DC Current Gain

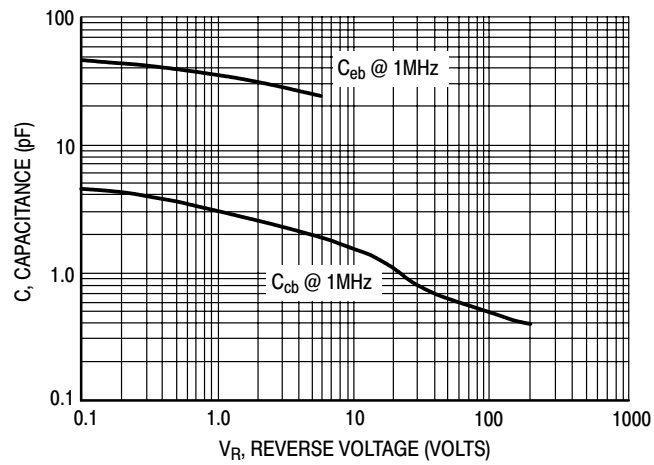


Figure 2. Capacitance

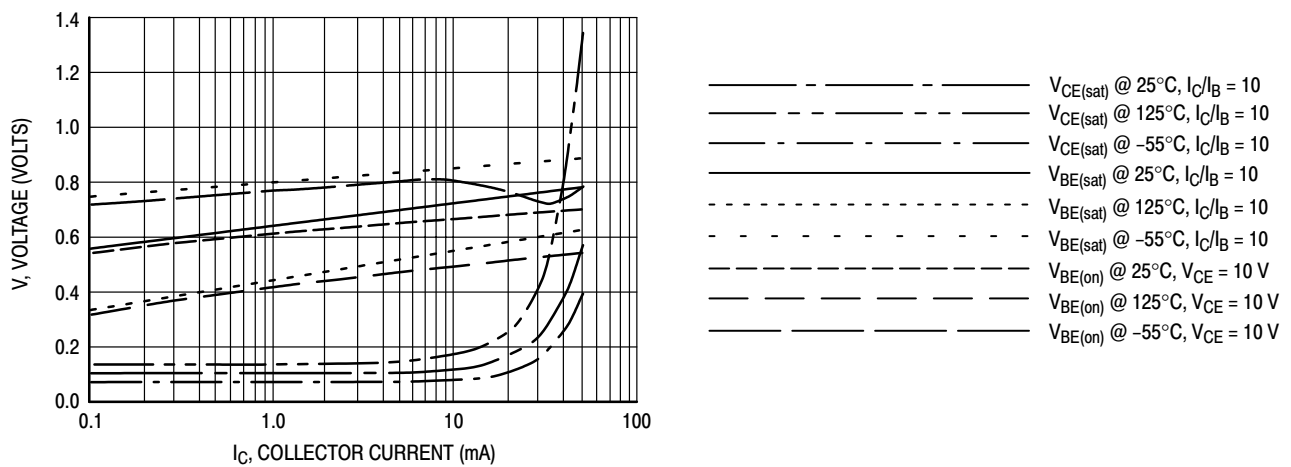
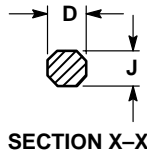
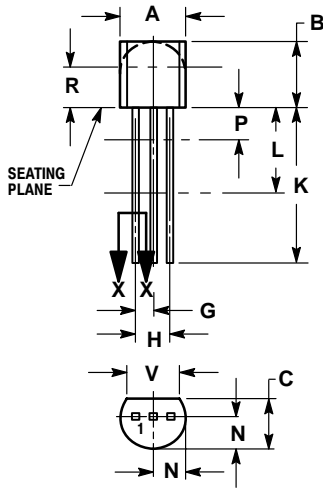


Figure 3. "ON" Voltages

MPSA42, MPSA43

PACKAGE DIMENSIONS

TO-92
TO-226AA
CASE 29-11
ISSUE AL



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.


DIM	INCHES		MILLIMETERS	
	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
E	0.045	0.055	1.15	1.39
F	0.095	0.105	2.42	2.66
G	0.015	0.020	0.39	0.50
H	0.500	---	12.70	---
I	0.250	---	6.35	---
J	0.080	0.105	2.04	2.66
K	---	0.100	---	2.54
L	0.115	---	2.93	---
M	0.135	---	3.43	---

STYLE 1:

1. EMITTER
2. BASE
3. COLLECTOR

STYLE 14:

1. EMITTER
2. COLLECTOR
3. BASE

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

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: ONlit@hibbertco.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

JAPAN: ON Semiconductor, Japan Customer Focus Center
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031
Phone: 81-3-5740-2700
Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local Sales Representative.