MPSA12

Darlington Transistors

NPN Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CES}	20	Vdc
Emitter Base Voltage	V_{EBO}	10	Vdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0	mW 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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

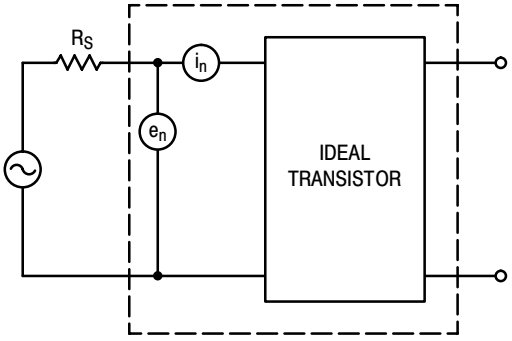
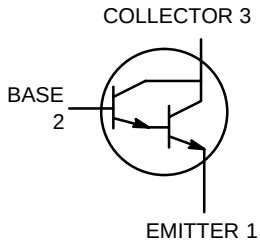
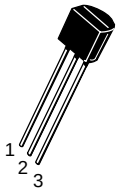


Figure 1. Transistor Noise Model

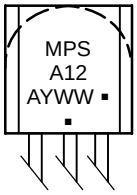
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



MARKING DIAGRAM



TO−92
CASE 29−11
STYLE 1



MPSA12 = Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MPSA12	TO−92	5,000 Units/Box
MPSA12G	TO−92 (Pb−Free)	5,000 Units/Box
MPSA12RLRA	TO−92	2,000/Tape & Reel
MPSA12RLRAG	TO−92 (Pb−Free)	2,000/Tape & Reel
MPSA12RLRP	TO−92	2,000/Tape & Reel
MPSA12RLRPG	TO−92 (Pb−Free)	2,000/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.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Breakdown Voltage (I_C = 100 μAdc, I_B = 0)	$V_{(BR)CES}$	20	−	Vdc
Collector Cutoff Current (V_{CB}= 15 Vdc, I_E = 0)	I_{CBO}	−	100	nAdc
Emitter Cutoff Current (V_{EB}= 12 Vdc, I_C = 0)	I_{EBO}	−	100	nAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 10 mAdc, V_{CE} = 5.0 Vdc)	h_{FE}	20,000	−	−
Collector−Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 0.01 mAdc)	$V_{CE(sat)}$	−	1.0	Vdc
Base−Emitter On Voltage (I_C = 10 mAdc, V_{CE} = 5.0 Vdc)	$V_{BE(on)}$	−	1.4	Vdc

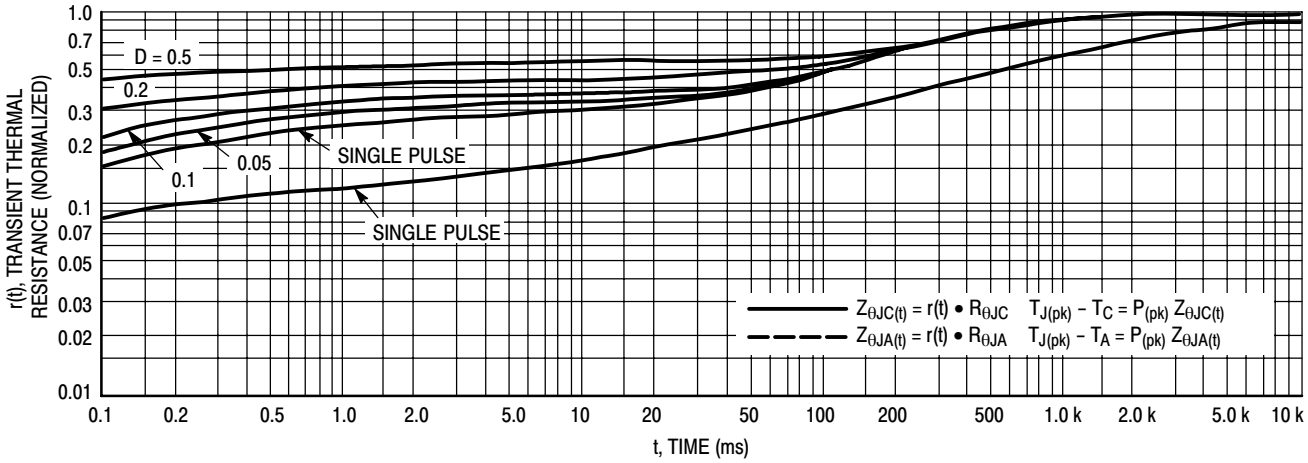
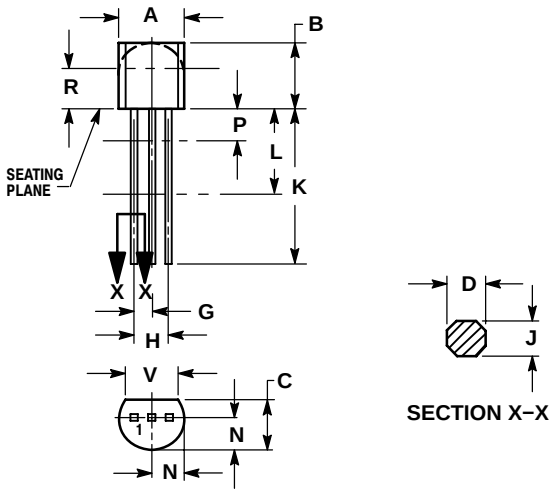


Figure 2. Thermal Response

MPSA12

PACKAGE DIMENSIONS

TO−92 (TO−226)
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.

	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 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

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

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

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

For additional information, please contact your local Sales Representative.

MPSA12/D