MJW0281A (NPN)
MJW0302A (PNP)

Preferred Devices

Complementary NPN-PNP Power Bipolar Transistors

These complementary devices are lower power versions of the popular MJW3281A and MJW1302A audio output transistors. With superior gain linearity and safe operating area performance, these transistors are ideal for high fidelity audio amplifier output stages and other linear applications.

Features

- Exceptional Safe Operating Area
- NPN/PNP Gain Matching within 10% from 50 mA to 5 A
- Excellent Gain Linearity
- High BVCEO
- High Frequency

Benefits

- Reliable Performance at Higher Powers
- Symmetrical Characteristics in Complementary Configurations
- Accurate Reproduction of Input Signal
- Greater Dynamic Range
- High Amplifier Bandwith

Applications

- High−End Consumer Audio Products
  - Home Amplifiers
  - Home Receivers
- Professional Audio Amplifiers
  - Theater and Stadium Sound Systems
  - Public Address Systems (PAs)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	260	Vdc
Collector−Base Voltage	V_{CBO}	260	Vdc
Emitter−Base Voltage	V_{EBO}	5.0	Vdc
Collector−Emitter Voltage − 1.5 V	V_{CEX}	260	Vdc
Collector Current − Continuous − Peak (Note 1)	I_C	15 30	Adc
Base Current − Continuous	I_B	1.5	Adc
Total Power Dissipation @ T_C = 25°C	P_D	150	Watts
Operating and Storage Junction Temperature Range	T_J, T_{stg}	− 65 to +150	°C

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.

1. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle < 10%.

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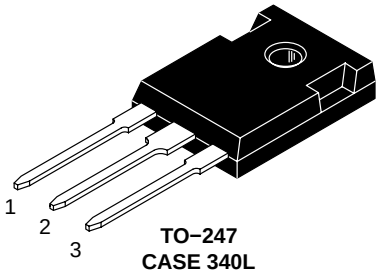
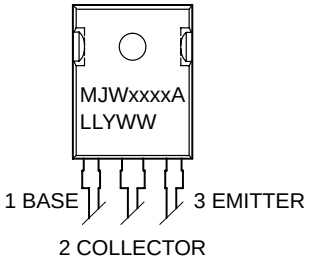
http://onsemi.com

15 AMPERES
COMPLEMENTARY
SILICON POWER
TRANSISTORS
260 VOLTS
150 WATTS



TO−247
CASE 340L
STYLE 3

MARKING DIAGRAM



MJWxxxxA = Device Code
xxxx = 0281 OR 0302
LL = Location Code
Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
MJW0281A	TO−247	30 Units/Rail
MJW0302A	TO−247	30 Units/Rail

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

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	0.83	°C/W

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Sustaining Voltage (I_C = 30 mA, I_B = 0)	$V_{CEO(sus)}$	260	−	V
Collector Cutoff Current (V_{CB} = 260 V, I_E = 0)	I_{CBO}	−	10	μA
Emitter Cutoff Current (V_{EB} = 5.0 V, I_C = 0)	I_{EBO}	−	5.0	μA
ON CHARACTERISTICS				
DC Current Gain (I_C = 0.5 A, V_{CE} = 5.0 V) (I_C = 1.0 A, V_{CE} = 5.0 V) (I_C = 3.0 A, V_{CE} = 5.0 V)	h_{FE}	 75 75 75	 150 150 150	−
Collector−Emitter Saturation Voltage (I_C = 5.0 A, I_B = 0.5 A)	$V_{CE(sat)}$	−	1.0	V
Base−Emitter On Voltage (I_C = 5.0 A, V_{CE} = 5.0 V)	$V_{BE(on)}$	−	1.2	V
DYNAMIC CHARACTERISTICS				
Current−Gain − Bandwidth Product (I_C = 1.0 A, V_{CE} = 5.0 V, f_{test} = 1.0 MHz)	f_T	30	−	MHz
Output Capacitance (V_{CB} = 10 V, I_E = 0, f_{test} = 1.0 MHz)	C_{ob}	−	400	pF

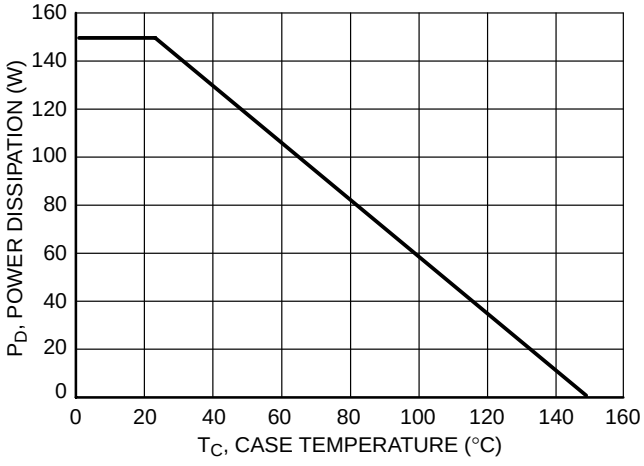

Figure 1. Power Derating

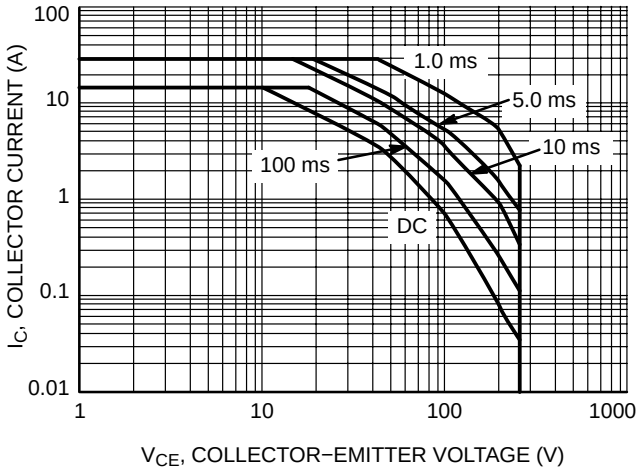

Figure 2. Safe Operating Area

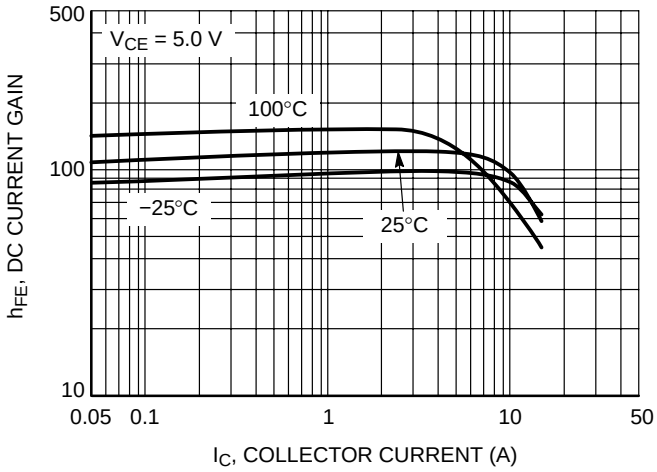

Figure 3. MJW0281A DC Current Gain

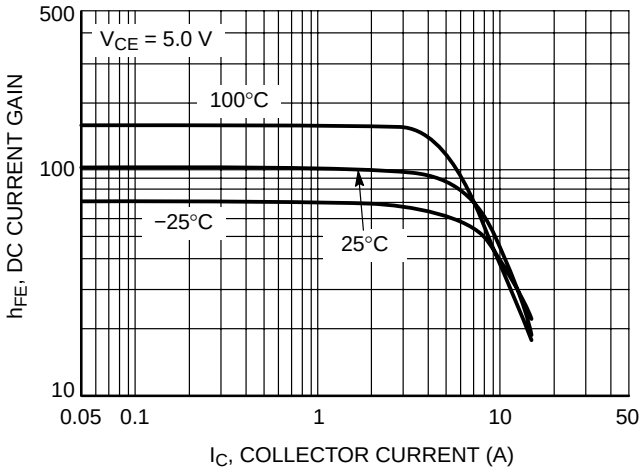

Figure 4. MJW0302A DC Current Gain

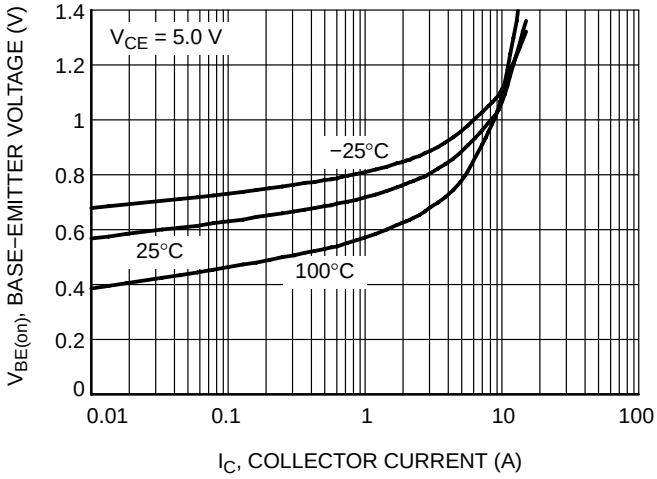

Figure 5. MJW0281A Base−Emitter Voltage

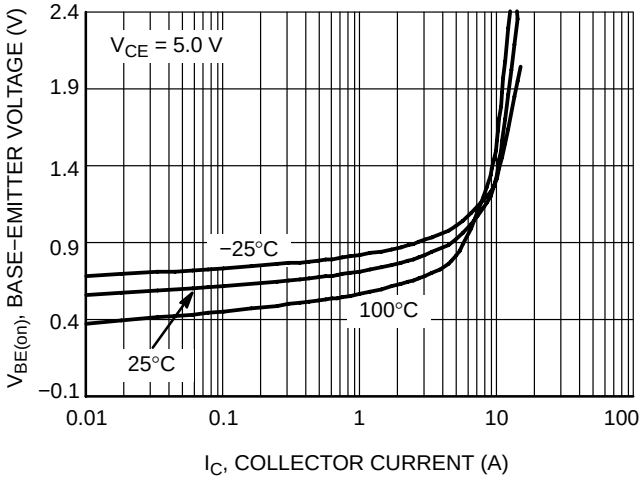

Figure 6. MJW0302A Base−Emitter Voltage

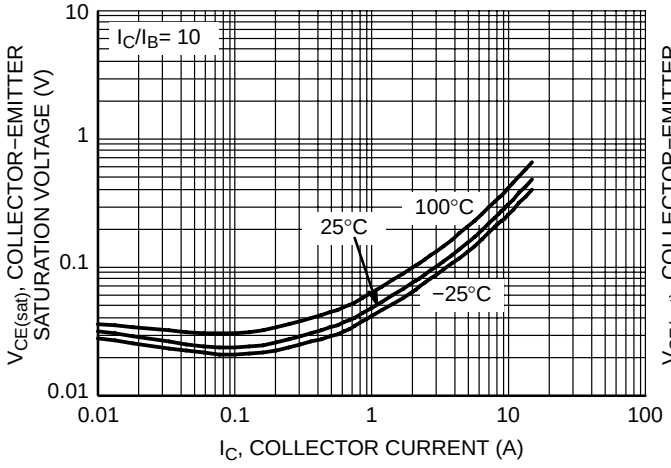

Figure 7. MJW0281A Saturation Voltage

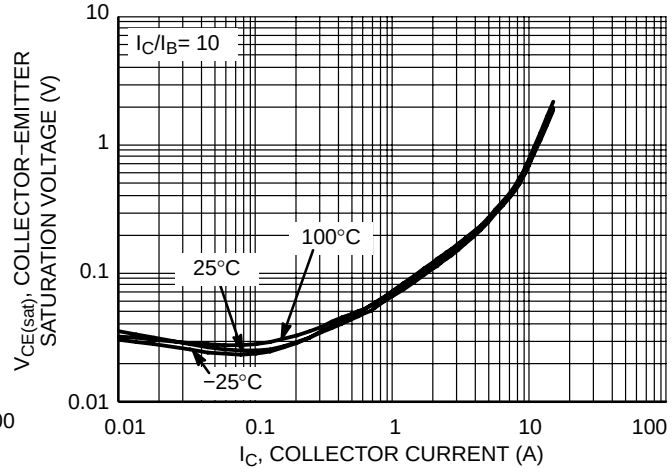

Figure 8. MJW0302A Saturation Voltage

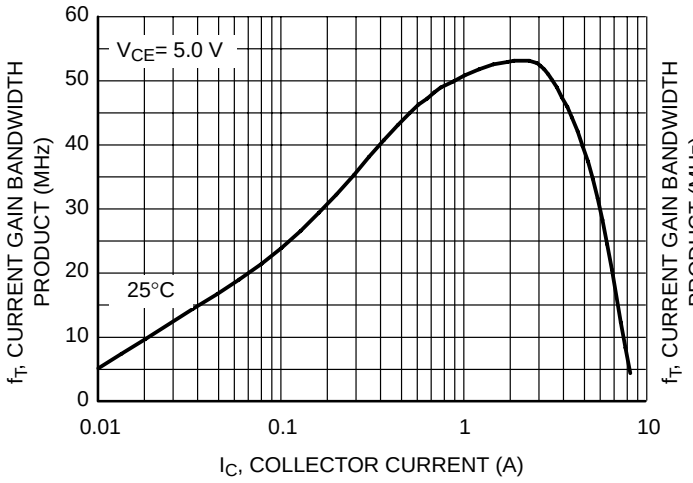

Figure 9. MJW0281A Current Gain Bandwidth Product

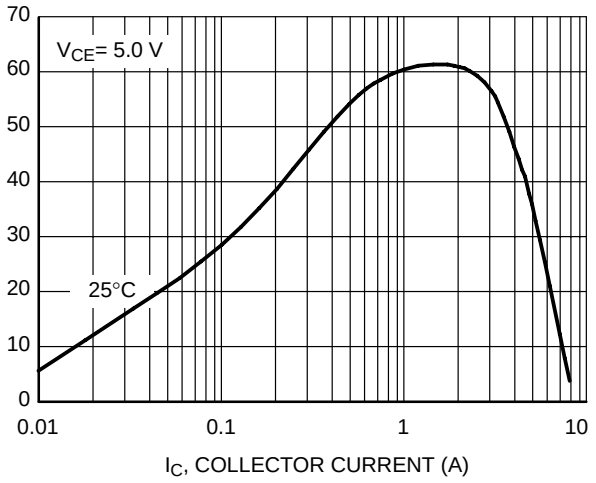

Figure 10. MJW0302A Current Gain Bandwidth Product

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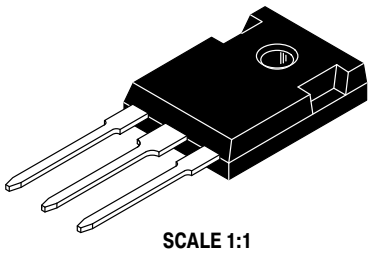
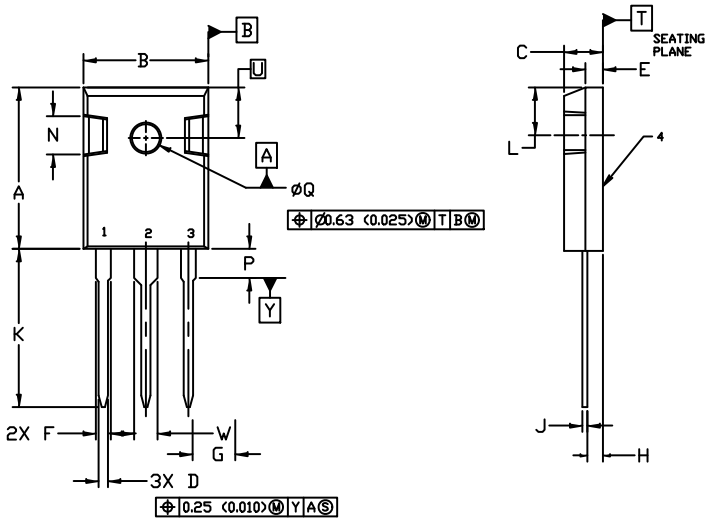
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

TO−247
CASE 340L
ISSUE G

DATE 06 OCT 2021



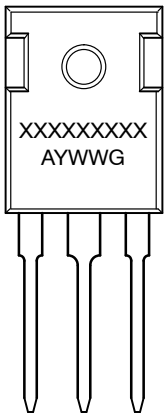
SCALE 1:1



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER

	MILLIMETERS		INCHES	
DIM	MIN.	MAX.	MIN.	MAX.
A	20.32	21.08	0.800	0.830
B	15.75	16.26	0.620	0.640
C	4.70	5.30	0.185	0.209
D	1.00	1.40	0.040	0.055
E	1.90	2.60	0.075	0.102
F	1.65	2.13	0.065	0.084
G	5.45 BSC		0.215 BSC	
H	1.50	2.49	0.059	0.098
J	0.40	0.80	0.016	0.031
K	19.81	20.83	0.780	0.820
L	5.40	6.20	0.212	0.244
N	4.32	5.49	0.170	0.216
P	----	4.50	----	0.177
Q	3.55	3.65	0.140	0.144
U	6.15 BSC		0.242 BSC	
W	2.87	3.12	0.113	0.123

GENERIC MARKING DIAGRAM*



XXXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 2:
PIN 1. ANODE
2. CATHODE (S)
3. ANODE 2
4. CATHODES (S)

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

STYLE 4:
PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 5:
PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

STYLE 6:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. MAIN TERMINAL 2

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