NJL1302D Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	NJL1302D-DG
Manufacturer	onsemi
Manufacturer Product Number	NJL1302D
Description	TRANS PNP 260V 15A TO264
Detailed Description	Bipolar (BJT) Transistor PNP 260 V 15 A 30MHz 200 W Through Hole TO-264

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
NJL1302D	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
PNP	15 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
260 V	3V @ 1A, 10A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
50µA (ICBO)	75 @ 5A, 5V
Power - Max:	Frequency - Transition:
200 W	30MHz
Operating Temperature:	Mounting Type:
-65°C ~ 150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
TO-264-5	TO-264
Base Product Number:	
NJL1302	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
RoHS non-compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0075	

ON Semiconductor

Is Now

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NJL3281D (NPN)
NJL1302D (PNP)

Complementary ThermalTrak™ Transistors

The ThermalTrak family of devices has been designed to eliminate thermal equilibrium lag time and bias trimming in audio amplifier applications. They can also be used in other applications as transistor die protection devices.

Features

- Thermally Matched Bias Diode
- Instant Thermal Bias Tracking
- Absolute Thermal Integrity
- High Safe Operating Area
- Pb−Free Packages are Available*

Benefits

- Eliminates Thermal Equilibrium Lag Time and Bias Trimming
- Superior Sound Quality Through Improved Dynamic Temperature Response
- Significantly Improved Bias Stability
- Simplified Assembly
  - Reduced Labor Costs
  - Reduced Component Count
- High Reliability

Applications

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

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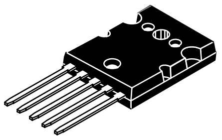
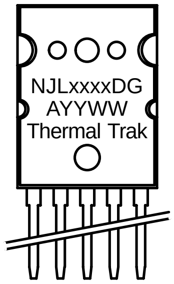
http://onsemi.com

BIPOLAR POWER TRANSISTORS
15 AMP, 260 VOLT, 200 WATT

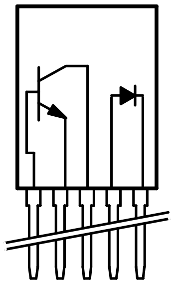


TO−264, 5 LEAD
CASE 340AA
STYLE 1

MARKING DIAGRAM



SCHEMATIC



NJLxxxxD = Device Code
xxxx = 3281 or 1302
G = Pb−Free Package
A = Assembly Location
YY = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
NJL3281D	TO−264	25 Units / Rail
NJL3281DG	TO−264 (Pb−Free)	25 Units / Rail
NJL1302D	TO−264	25 Units / Rail
NJL1302DG	TO−264 (Pb−Free)	25 Units / Rail

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

June, 2006 − Rev. 2

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	260	Vdc
Collector−Base Voltage	V_{CBO}	260	Vdc
Emitter−Base Voltage	V_{EBO}	5	Vdc
Collector−Emitter Voltage − 1.5 V	V_{CEX}	260	Vdc
Collector Current − Continuous − Peak (Note 1)	I_C	15 25	Adc
Base Current − Continuous	I_B	1.5	Adc
Total Power Dissipation @ T_C = 25°C Derate Above 25°C	P_D	200 1.43	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	− 65 to +150	°C
DC Blocking Voltage	V_R	200	V
Average Rectified Forward Current	$I_{F(AV)}$	1.0	A

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	0.625	°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.

1. Pulse Test: Pulse Width = 5 ms, Duty Cycle < 10%.

ATTRIBUTES

Characteristic		Value
ESD Protection	Human Body Model Machine Model	>8000 V > 400 V
Flammability Rating		UL 94 V−0 @ 0.125 in

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Sustaining Voltage (I_C = 100 mAdc, I_B = 0)	$V_{CEO(sus)}$	260	−	Vdc
Collector Cutoff Current (V_{CB} = 260 Vdc, I_E = 0)	I_{CBO}	−	50	μAdc
Emitter Cutoff Current (V_{EB} = 5 Vdc, I_C = 0)	I_{EBO}	−	5	μAdc
ON CHARACTERISTICS				
DC Current Gain	h_{FE}			
(I_C = 500 mAdc, V_{CE} = 5 Vdc)		75	150	
(I_C = 1 Adc, V_{CE} = 5 Vdc)		75	150	
(I_C = 3 Adc, V_{CE} = 5 Vdc)		75	150	
(I_C = 5 Adc, V_{CE} = 5 Vdc)		75	150	
(I_C = 8 Adc, V_{CE} = 5 Vdc)		45	−	
Collector−Emitter Saturation Voltage (I_C = 10 Adc, I_B = 1 Adc)	$V_{CE(sat)}$	−	3	Vdc
DYNAMIC CHARACTERISTICS				
Current−Gain − Bandwidth Product (I_C = 1 Adc, V_{CE} = 5 Vdc, f_{test} = 1 MHz)	f_T	30	−	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f_{test} = 1 MHz)	C_{ob}	−	600	pF
Maximum Instantaneous Forward Voltage (Note 2)	v_F			V
(i_F = 1.0 A, T_J = 25°C)		1.1		
(i_F = 1.0 A, T_J = 150°C)		0.93		
Maximum Instantaneous Reverse Current (Note 2)	i_R			μA
(Rated dc Voltage, T_J = 25°C)		10		
(Rated dc Voltage, T_J = 150°C)		100		
Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 A/μs)	t_{rr}	100		ns

2. Diode Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

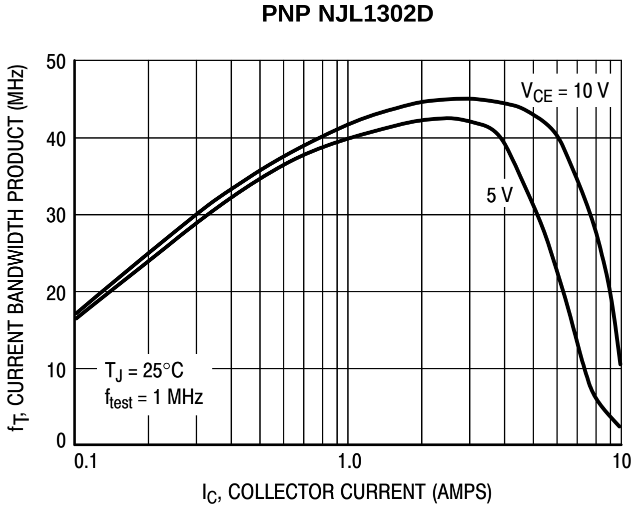

Figure 1. Typical Current Gain Bandwidth Product

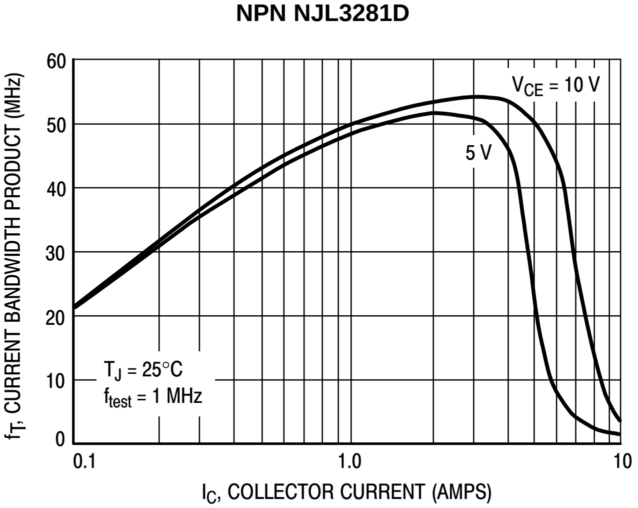

Figure 2. Typical Current Gain Bandwidth Product

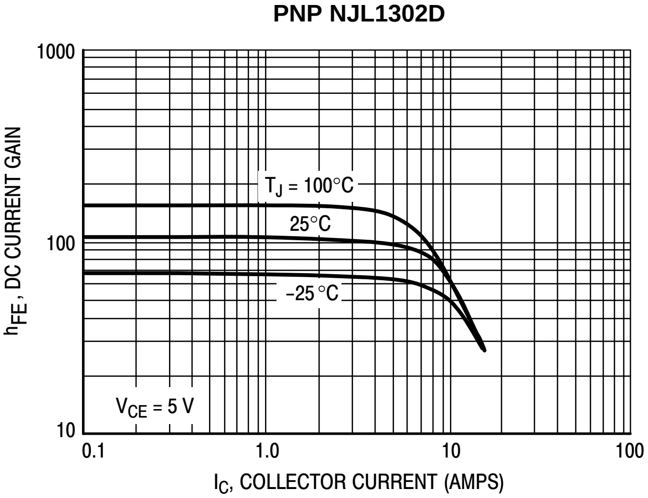

Figure 3. DC Current Gain, V_{CE} = 5 V

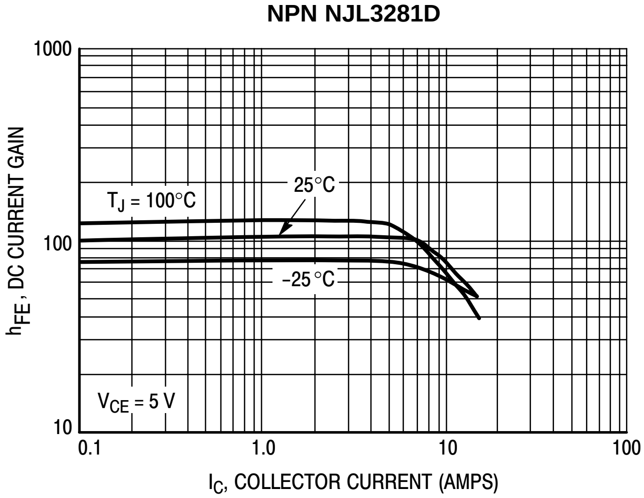

Figure 4. DC Current Gain, V_{CE} = 5 V

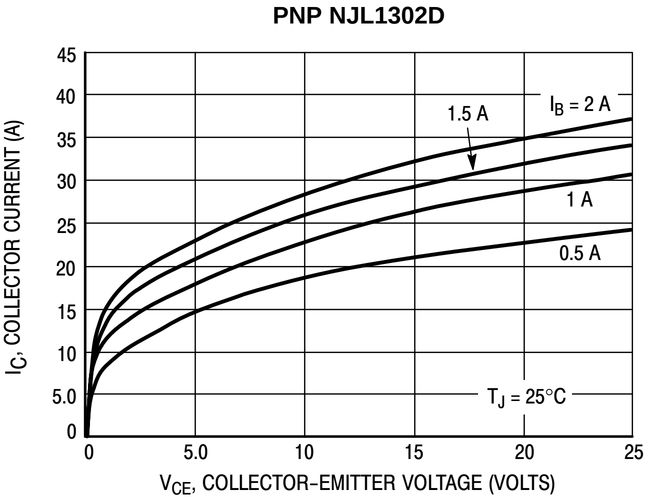

Figure 5. Typical Output Characteristics

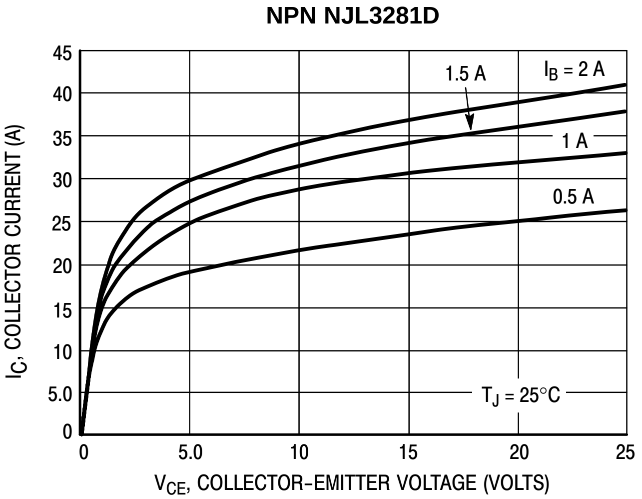

Figure 6. Typical Output Characteristics

TYPICAL CHARACTERISTICS

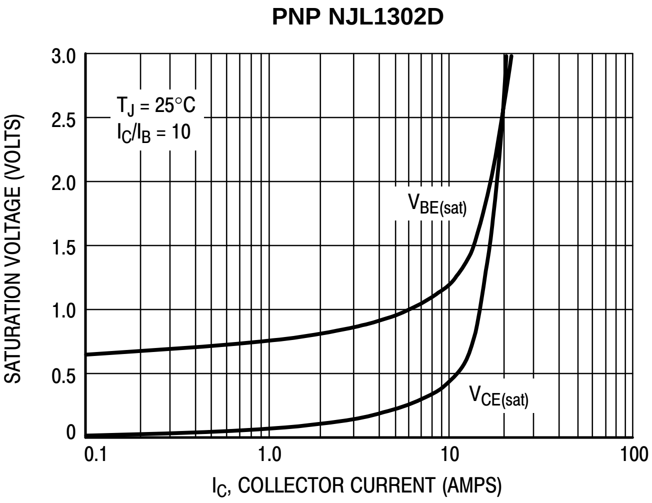

Figure 7. Typical Saturation Voltages

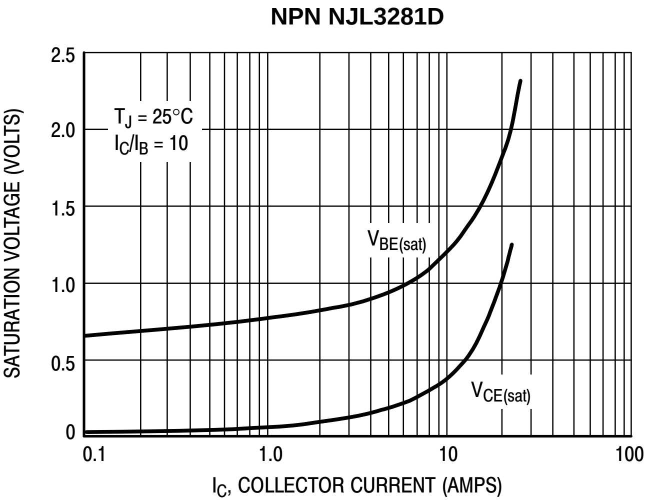

Figure 8. Typical Saturation Voltages

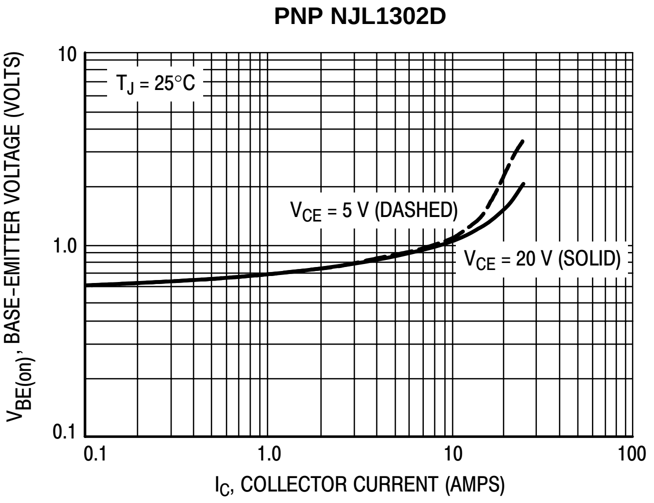

Figure 9. Typical Base−Emitter Voltage

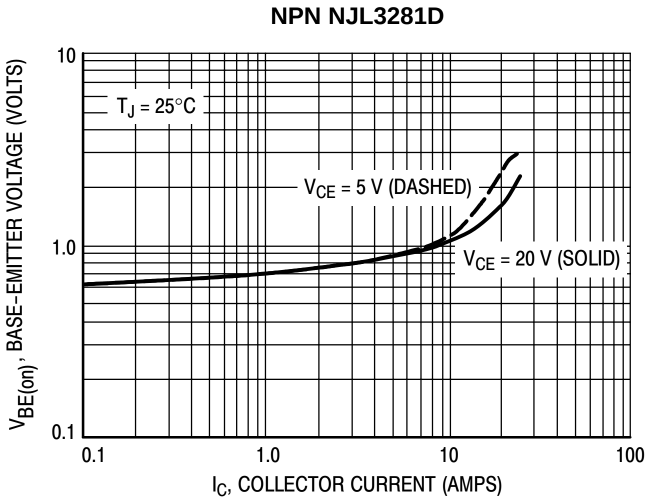

Figure 10. Typical Base−Emitter Voltage

TYPICAL CHARACTERISTICS

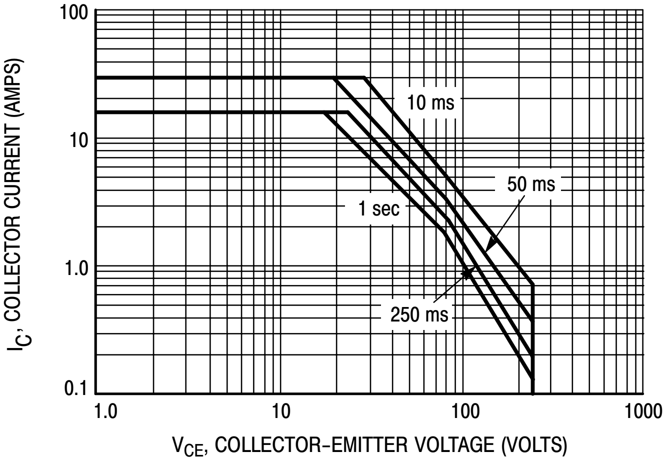

Figure 11. Active Region Safe Operating Area

There are two limitations on the power handling ability of a transistor; average junction temperature and secondary breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 11 is based on $T_{J(pk)} = 150°C$; T_C is variable depending on conditions. At high case temperatures, thermal limitations will reduce the power than can be handled to values less than the limitations imposed by second breakdown.

PNP NJL1302D

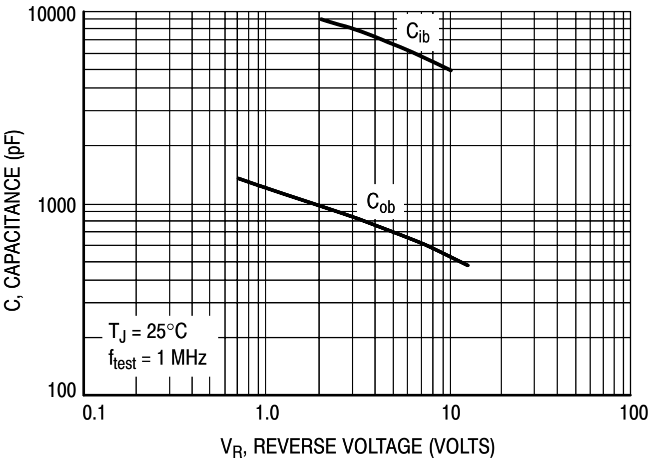

Figure 12. NJL1302D Typical Capacitance

NPN NJL3281D

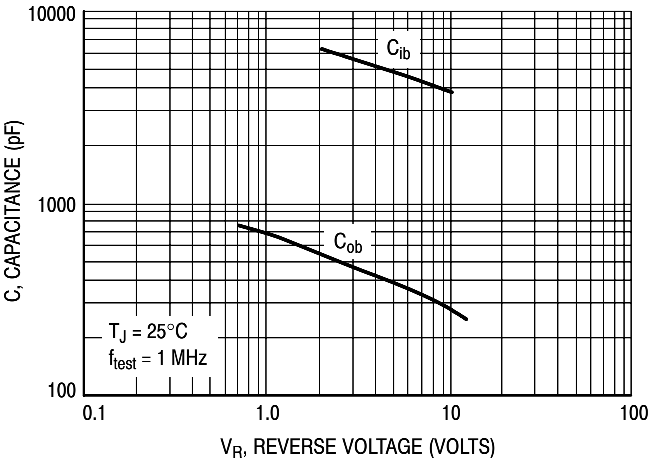

Figure 13. NJL3281D Typical Capacitance

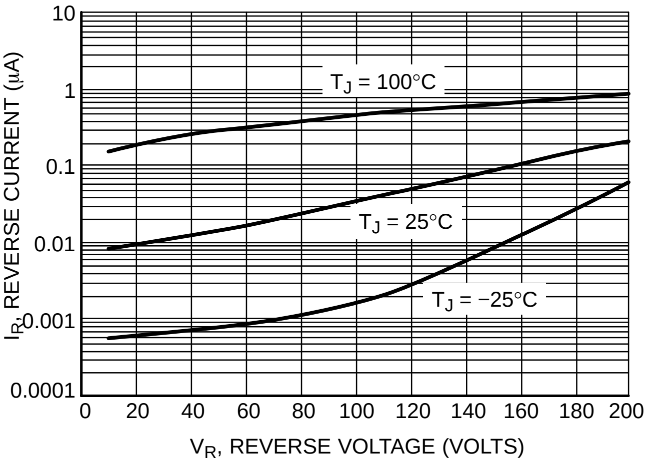

Figure 14. Typical Reverse Current

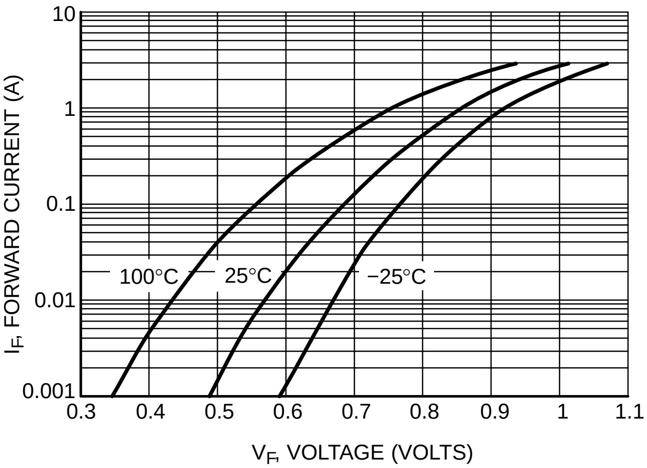

Figure 15. Typical Forward Voltage

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MECHANICAL CASE OUTLINE

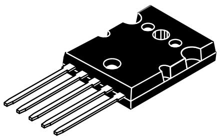
PACKAGE DIMENSIONS

ON Semiconductor®

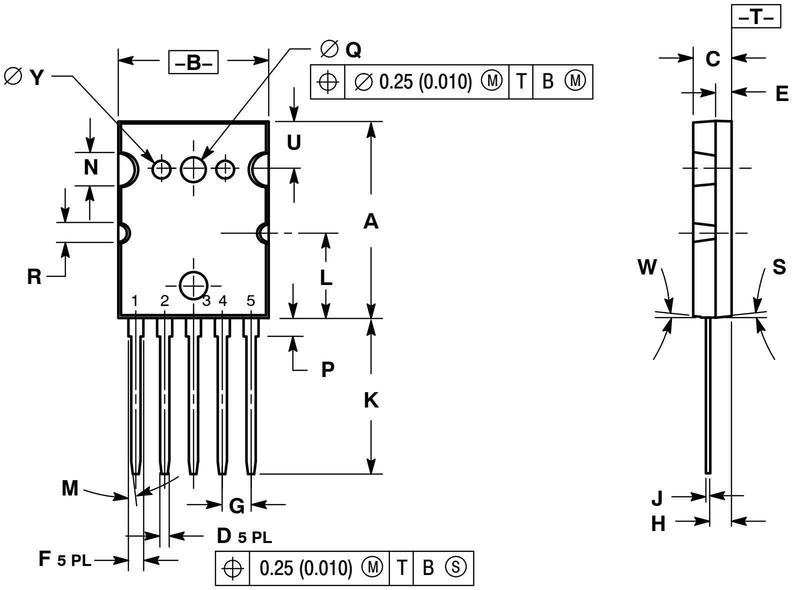
TO−264, 5 LEAD

CASE 340AA−01
ISSUE O

DATE 03 FEB 2005

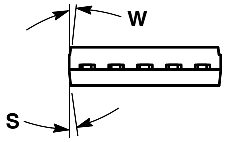


SCALE 1:2



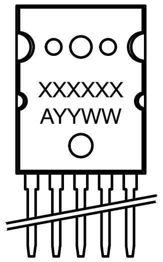
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	25.857	25.984	26.111	1.018	1.023	1.028
B	19.761	19.888	20.015	0.778	0.783	0.788
C	4.699	4.890	5.182	0.185	0.199	0.204
D	1.219 BSC			0.0480 BSC		
E	1.890	2.042	2.184	0.0748	0.0804	0.0860
F	1.981 BSC			0.0780 BSC		
G	3.81 BSC			0.150 BSC		
H	2.667	2.718	2.769	0.1050	0.1070	0.1090
J	0.584 BSC			0.0230 BSC		
K	20.422	20.549	20.676	0.804	0.809	0.814
L	11.28 REF			0.444 REF		
M	0 °	---	7 °	0 °	---	7 °
N	4.57 REF			0.180 REF		
P	2.259	2.386	2.513	0.0889	0.0939	0.0989
Q	3.480 BSC			0.1370 BSC		
R	2.54 REF			0.100 REF		
S	0 °	---	8 °	0 °	---	8 °
U	6.17 REF			0.243 REF		
W	0 °	---	6 °	0 °	---	6 °
Y	2.388 BSC			0.0940 BSC		



STYLE 1:
PIN 1. BASE
2. EMITTER
3. COLLECTOR
4. ANODE
5. CATHODE

GENERIC MARKING DIAGRAM*



XXXXXX = Specific Device Code
A = Assembly Location
YY = Year
WW = Work Week
G or ▪ = 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.

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CERTIFICATE OF INCORPORATION

MEMBERSHIP

Certificate

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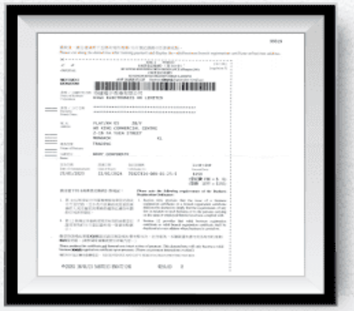

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