NTSJ3080CTG

Very Low Forward Voltage Trench-based Schottky Rectifier

Exceptionally Low V_F = 0.455 V at I_F = 5 A

ON Semiconductor®

http://onsemi.com

Features

- Fine Lithography Trench−based Schottky Technology for Very Low Forward Voltage and Low Leakage
- Fast Switching with Exceptional Temperature Stability
- Low Power Loss and Lower Operating Temperature
- Higher Efficiency for Achieving Regulatory Compliance
- Low Thermal Resistance
- High Surge Capability
- Pb−Free and Halide−Free Packages are Available

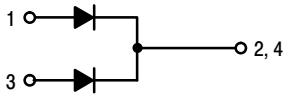
Typical Applications

- Switching Power Supplies including Notebook / Netbook Adapters, ATX and Flat Panel Display
- High Frequency and DC−DC Converters
- Freewheeling and OR−ing diodes
- Reverse Battery Protection
- Instrumentation

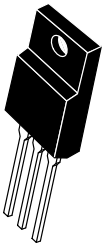
Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94−0 @ 0.125 in
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Maximum for 10 sec

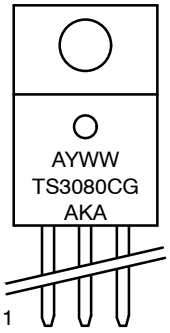
PIN CONNECTIONS



TO−220FB
CASE 221AH



MARKING DIAGRAMS



A	= Assembly Location
Y	= Year
WW	= Work Week
AKA	= Polarity Designator
G	= Pb−Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V_{RRM} V_{RWM} V_R	80	V
Average Rectified Forward Current (Rated V_R, T_C = 115°C)	Per device Per diode	$I_{F(AV)}$	 30 15	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_C = 110°C)	Per device Per diode	I_{FRM}	 60 30	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I_{FSM}	160	A
Operating Junction Temperature		T_J	−40 to +150	°C
Storage Temperature		T_{stg}	−40 to +150	°C
Voltage Rate of Change (Rated V_R)		dv/dt	10,000	V/μs

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.

THERMAL CHARACTERISTICS

Rating		Symbol	Value	Unit
Maximum Thermal Resistance (insertion mounted to 1 oz FR4 Board)	Junction−to−Case	$R_{\theta JC}$	4.0	°C/W
	Junction−to−Ambient	$R_{\theta JA}$	105	°C/W

1. Junction−to−Case, using large Heatsink attached to device.
2. Junction−to−Ambient, using with no Heatsink.

ELECTRICAL CHARACTERISTICS (Per Leg unless otherwise noted)

Rating	Symbol	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 3)	v_F			V
(I_F = 5 A, T_J = 25°C)		0.516	−	
(I_F = 7.5 A, T_J = 25°C)		0.576	−	
(I_F = 15 A, T_J = 25°C)		0.734	0.85	
(I_F = 5 A, T_J = 125°C)		0.455	−	
(I_F = 7.5 A, T_J = 125°C)		0.522	−	
(I_F = 15 A, T_J = 125°C)		0.627	0.68	
Maximum Instantaneous Reverse Current (Note 3)	I_R			
(Rated dc Voltage, T_J = 25°C)		20	700	μA
(Rated dc Voltage, T_J = 125°C)		8	30	mA

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

ORDERING INFORMATION

Device	Package	Shipping
NTSJ3080CTG	TO−220FB (Pb−Free)	50 Units / Rail

TYPICAL CHARACTERISITICS

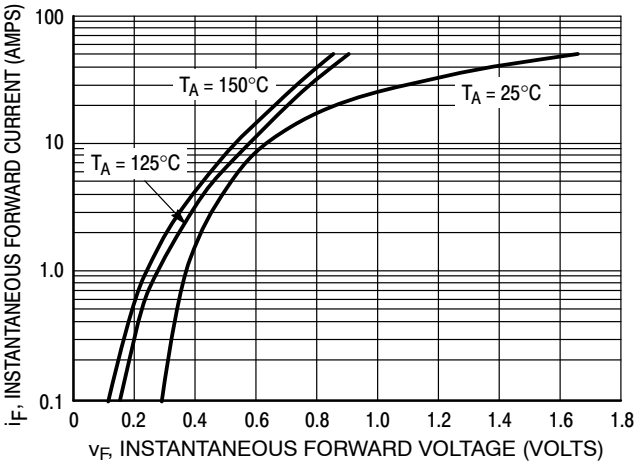


Figure 1. Typical Forward Voltage

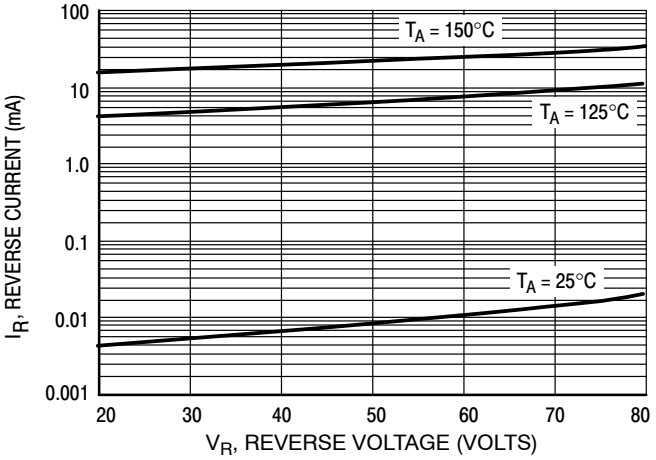


Figure 2. Typical Reverse Current

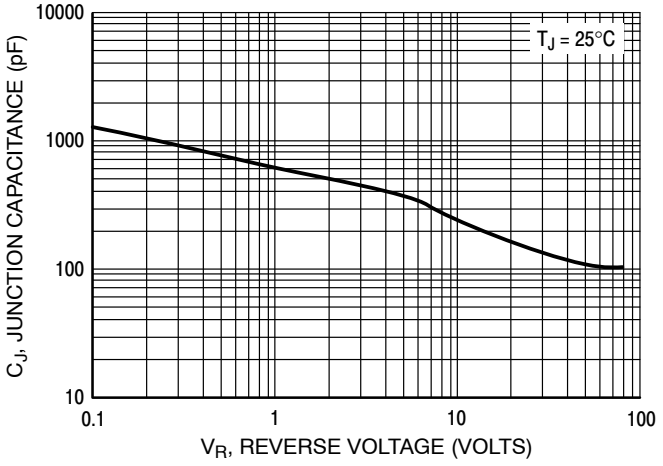


Figure 3. Typical Junction Capacitance

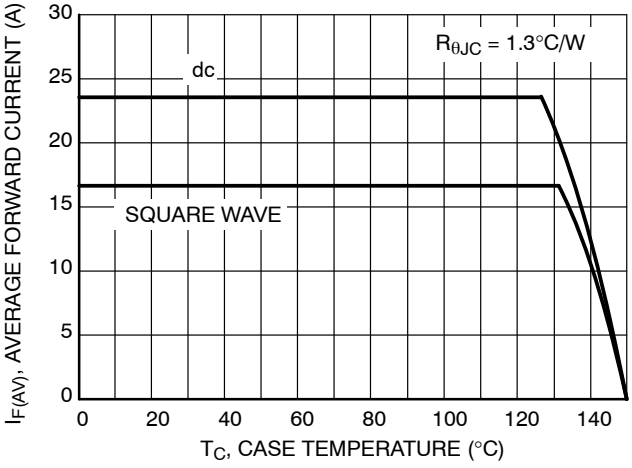


Figure 4. Current Derating per Leg

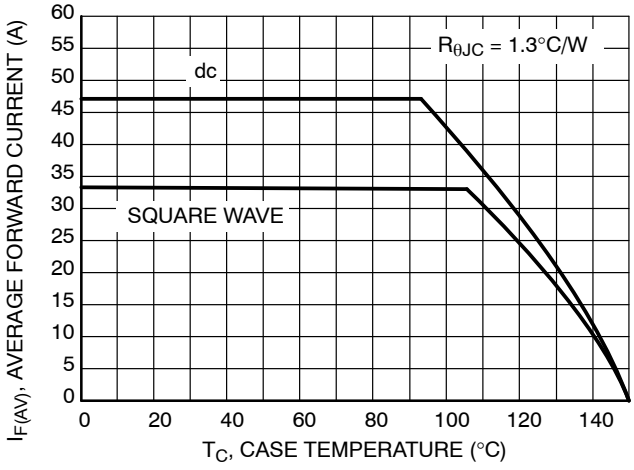


Figure 5. Current Derating

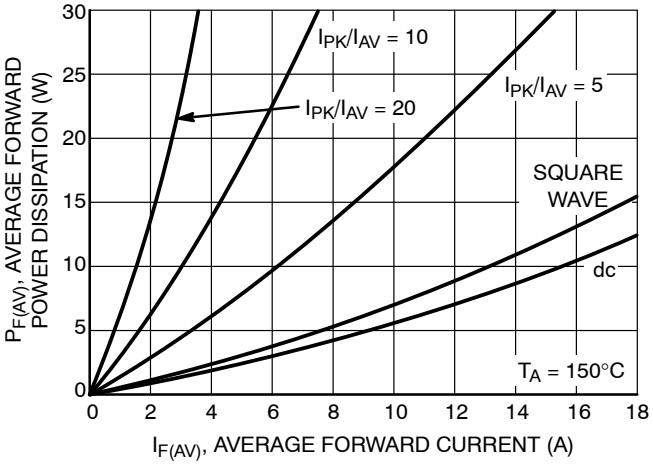


Figure 6. Forward Power Dissipation

TYPICAL CHARACTERISITICS

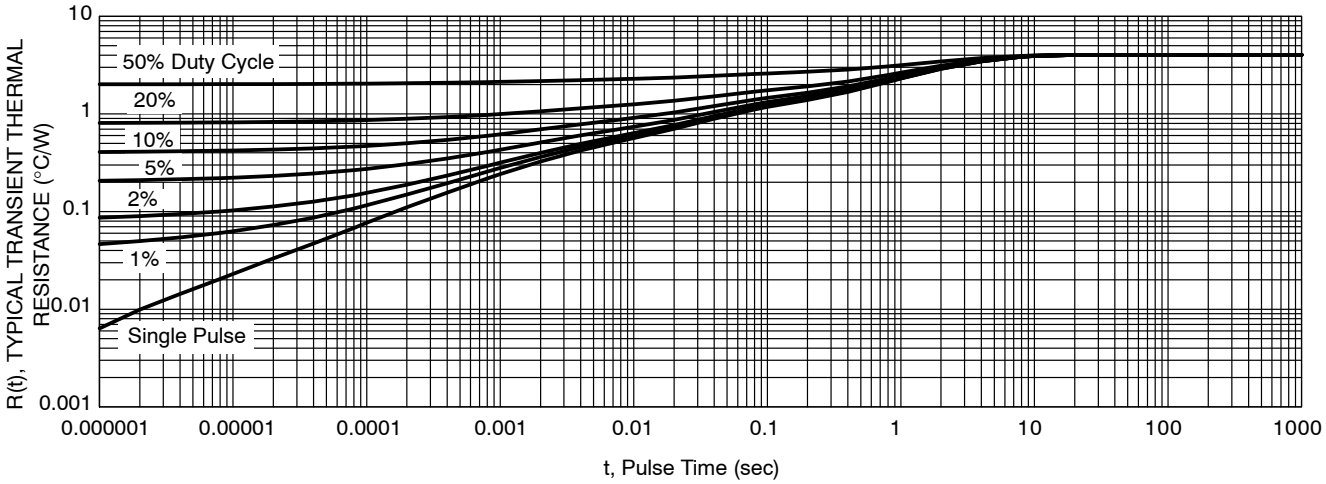
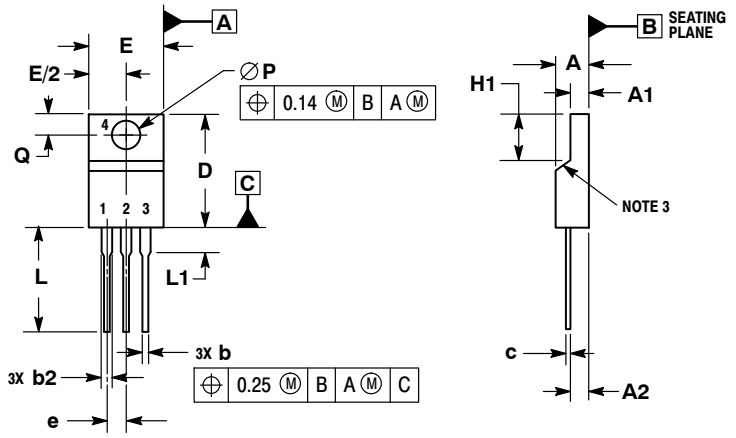


Figure 7. Typical Transient Thermal Response, Junction−to−Case

NTSJ3080CTG

PACKAGE DIMENSIONS

TO−220 FULLPACK, 3−LEAD
CASE 221AH
ISSUE B



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR UNCONTROLLED IN THIS AREA.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH AND GATE PROTRUSIONS. MOLD FLASH AND GATE PROTRUSIONS NOT TO EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE TO BE MEASURED AT OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DIMENSION b2 DOES NOT INCLUDE DAMBAR PROTRUSION. LEAD WIDTH INCLUDING PROTRUSION SHALL NOT EXCEED 2.00.

	MILLIMETERS	
DIM	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.70
b	0.54	0.84
b2	1.10	1.40
c	0.49	0.79
D	14.70	15.30
E	9.70	10.30
e	2.54 BSC	
H1	6.70	7.10
L	12.70	14.73
L1	---	2.80
P	3.00	3.40
Q	2.80	3.20

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
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