20A, 100V Very Low Forward Voltage Trenchbased Schottky Rectifier

Exceptionally Low $V_F = 0.485 \text{ V}$ at $I_F = 5 \text{ A}$

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
- These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

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

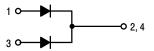
- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94-0 @ 0.125 in
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Maximum for 10 sec



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PIN CONNECTIONS





MARKING DIAGRAM



A = Assembly Location

Y = Year WW = Work Week AKA = Polarity Designator G = Pb-Free Package

ORDERING INFORMATION

See detailed ordering and shipping information 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	100	V
Average Rectified Forward Current (Rated V _R , T _C = 115°C)	Per device Per diode	I _{F(AV)}	20 10	А
Peak Repetitive Forward Current (Rated V _R , Square Wave, 20 kHz, T _C = 110°C)	Per device Per diode	I _{FRM}	40 20	А
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)		I _{FSM}	100	А
Operating Junction Temperature		TJ	-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 those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Rating			Value	Unit
Maximum Thermal Resistance	Junction-to-Case Junction-to-Ambient	$R_{ heta JC} \ R_{ heta JA}$	2.0 70	°C/W

ELECTRICAL CHARACTERISTICS (Per Leg unless otherwise noted)

Rating	Symbol	Тур	Max	Unit
Maximum Instantaneous Forward Voltage (Note 1)	V _F			V
$(I_F = 5 \text{ A}, T_J = 25^{\circ}\text{C})$		0.520	_	
$(I_F = 10 \text{ A}, T_J = 25^{\circ}\text{C})$		0.658	0.98	
(I _F = 5 A, T _J = 125°C)		0.485	_	
$(I_F = 10 \text{ A}, T_J = 125^{\circ}\text{C})$		0.593	0.82	
Maximum Instantaneous Reverse Current (Note 1)	I _R			
$(V_R = 70 \text{ V}, T_J = 25^{\circ}\text{C})$		9.6		μΑ
(V _R = 70 V, T _J = 125°C)		7.0		mA
(Rated dc Voltage, T _J = 25°C)		63.2	800	μΑ
(Rated dc Voltage, T _J = 125°C)		18.0	25	mA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width = $300 \,\mu s$, Duty Cycle $\leq 2.0\%$

ORDERING INFORMATION

Device	Package	Shipping
NTSV20U100CTG	TO-220AB (Pb-Free)	50 Units / Rail

TYPICAL CHARACTERISTICS

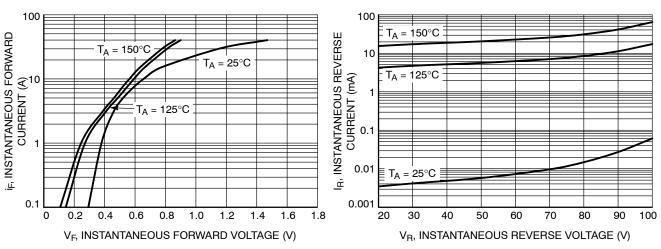


Figure 1. Typical Instantaneous Forward Characteristics

Figure 2. Typical Reverse Characteristics

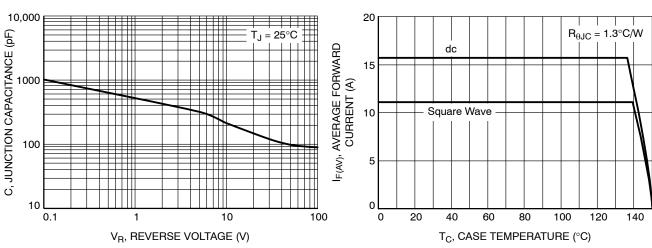
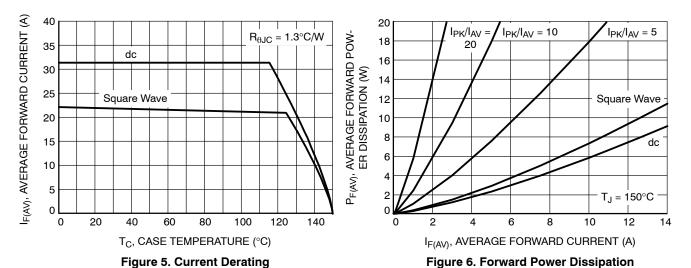


Figure 3. Typical Junction Capacitance

Figure 4. Current Derating per Leg



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TYPICAL CHARACTERISTICS

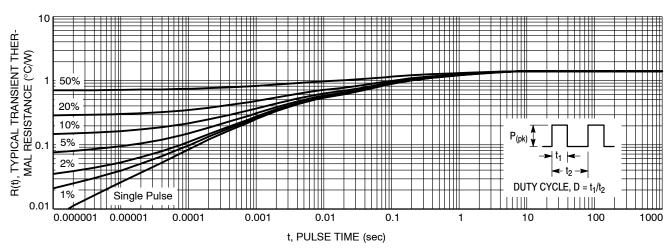
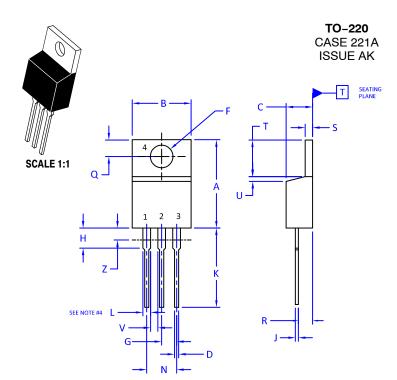


Figure 7. Typical Transient Thermal Response





DATE 13 JAN 2022

NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 2009.
- 2. CONTROLLING DIMENSION: INCHES
- 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

4. MAX WIDTH FOR F102 DEVICE = 1.35MM

	INCHES		MILLIMETERS	
DIM	MIN.	MAX.	MIN.	MAX.
Α	0.570	0.620	14.48	15.75
В	0.380	0.415	9.66	10.53
С	0.160	0.190	4.07	4.83
D	0.025	0.038	0.64	0.96
F	0.142	0.161	3.60	4.09
G	0.095	0.105	2.42	2.66
Н	0.110	0.161	2.80	4.10
J	0.014	0.024	0.36	0.61
К	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.41
Т	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045		1.15	
Z		0.080		2.04

STYLE 1: PIN 1. 2. 3. 4.	COLLECTOR EMITTER	STYLE 2: PIN 1. 2. 3. 4.	COLLECTOR	STYLE 3: PIN 1. 2. 3. 4.	ANODE	2. 3.	MAIN TERMINAL 1 MAIN TERMINAL 2 GATE MAIN TERMINAL 2
STYLE 5: PIN 1. 2. 3. 4.	DRAIN SOURCE	STYLE 6: PIN 1. 2. 3. 4.	CATHODE ANODE	STYLE 7: PIN 1. 2. 3. 4.	ANODE	2. 3.	CATHODE ANODE EXTERNAL TRIP/DELAY ANODE
STYLE 9: PIN 1. 2. 3. 4.			GATE SOURCE DRAIN SOURCE	STYLE 11: PIN 1. 2. 3. 4.		STYLE 12: PIN 1. 2. 3. 4.	MAIN TERMINAL 1 MAIN TERMINAL 2 GATE NOT CONNECTED

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