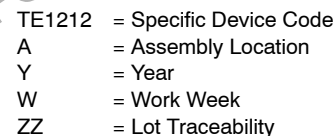


Very Low Leakage Trench-based Schottky Rectifier



**TRENCH SCHOTTKY
RECTIFIERS
12 AMPERES
120 VOLTS**

- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94-0 @ 0.125 in.
- Lead Finish: 100% Matte Sn (Tin)
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL 1 Requirements



Device	Package	Shipping†
NTS12120EMFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel
NTS12120EMFST3G	SO-8 FL (Pb-Free)	5000 / Tape & Reel
NRVTS12120EMFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel
NRVTS12120EMFST3G	SO-8 FL (Pb-Free)	5000 / Tape & Reel

Publication Order Number:
NTS12120EMFS/D

NTS12120EMFS, NRVTS12120EMFS

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	120	V
Average Rectified Forward Current (Rated V_R , $T_C = 165^\circ\text{C}$)	$I_{F(AV)}$	12	A
Peak Repetitive Forward Current, (Rated V_R , Square Wave, 20 kHz, $T_C = 163^\circ\text{C}$)	I_{FRM}	24	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	200	A
Storage Temperature Range	T_{stg}	-65 to +175	$^\circ\text{C}$
Operating Junction Temperature	T_J	-55 to +175	$^\circ\text{C}$
Unclamped Inductive Switching Energy (10 mH Inductor, Non-repetitive)	E_{AS}	100	mJ
ESD Rating (Human Body Model)		3B	
ESD Rating (Machine Model)		M4	

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

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction-to-Case, Steady State (Assumes 600 mm ² 1 oz. copper bond pad, on a FR4 board)	$R_{\theta JC}$	2.0	–	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS

Rating	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 1) ($I_F = 6\text{ A}$, $T_J = 25^\circ\text{C}$) ($I_F = 12\text{ A}$, $T_J = 25^\circ\text{C}$) ($I_F = 6\text{ A}$, $T_J = 125^\circ\text{C}$) ($I_F = 12\text{ A}$, $T_J = 125^\circ\text{C}$)	V_F	0.6 0.735 0.515 0.588	– 0.83 – 0.69	V
Instantaneous Reverse Current (Note 1) ($V_R = 90\text{ V}$, $T_J = 25^\circ\text{C}$) (Rated dc Voltage, $T_J = 25^\circ\text{C}$) ($V_R = 90\text{ V}$, $T_J = 125^\circ\text{C}$) (Rated dc Voltage, $T_J = 125^\circ\text{C}$)	I_R	1.73 3.75 2.4 3.87	– 55 – 30	μA μA mA mA

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

TYPICAL CHARACTERISTICS

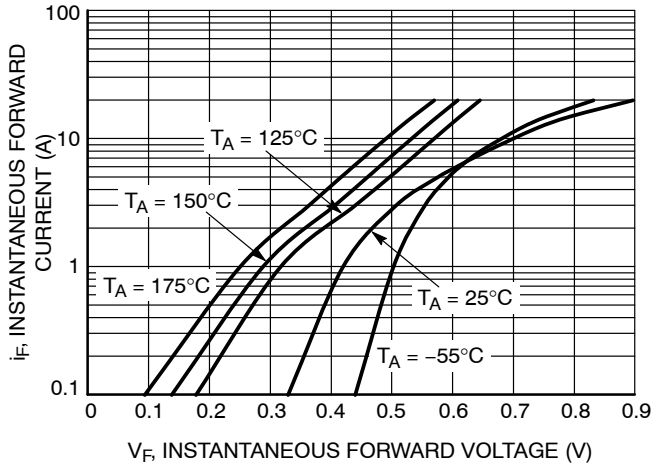


Figure 1. Typical Instantaneous Forward Characteristics

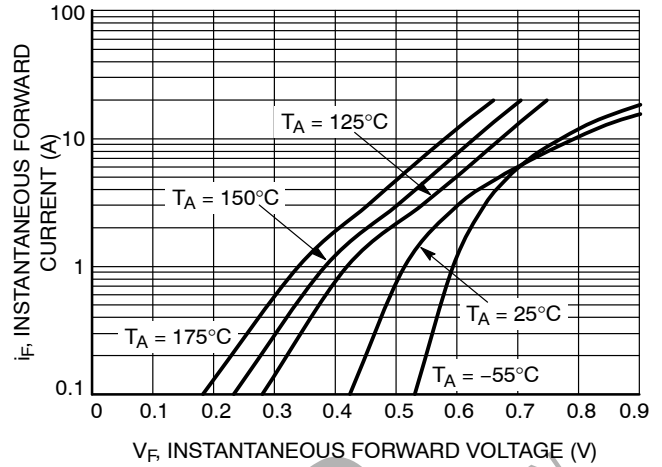


Figure 2. Maximum Instantaneous Forward Characteristics

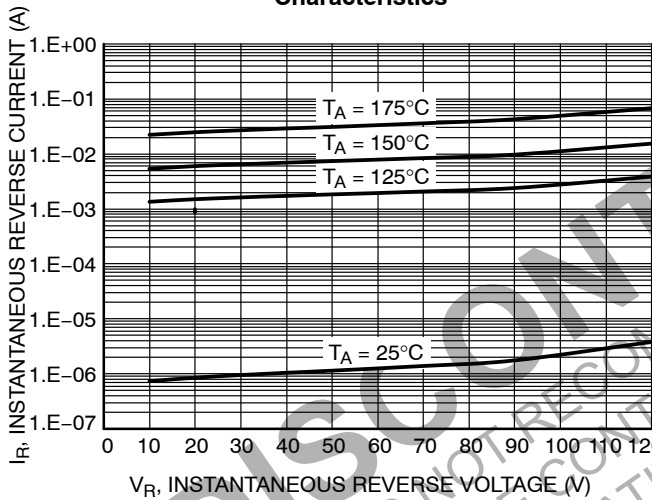


Figure 3. Typical Reverse Characteristics

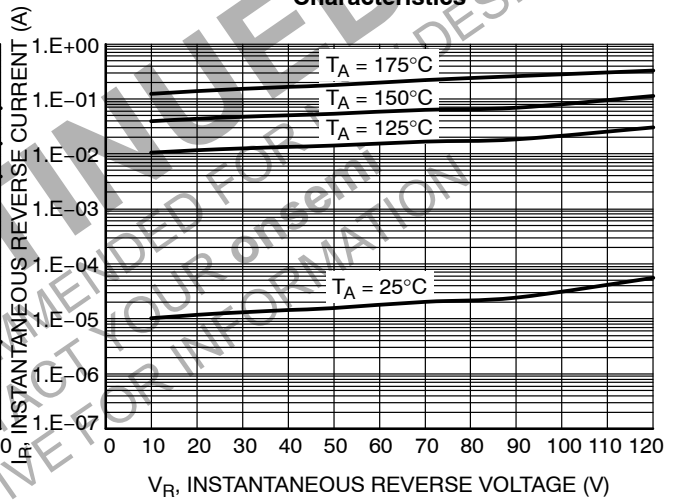


Figure 4. Maximum Reverse Characteristics

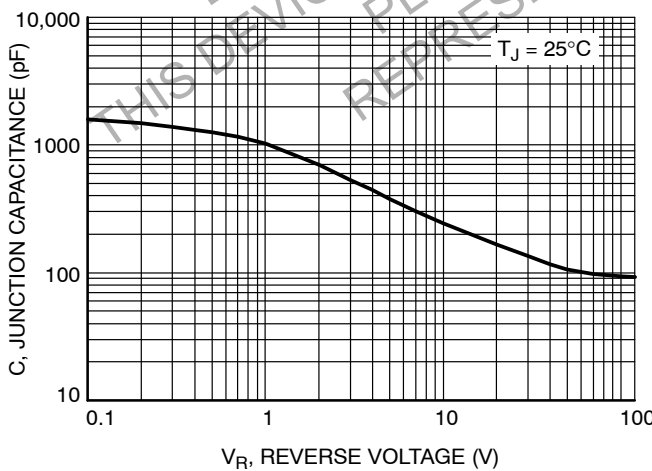


Figure 5. Typical Junction Capacitance

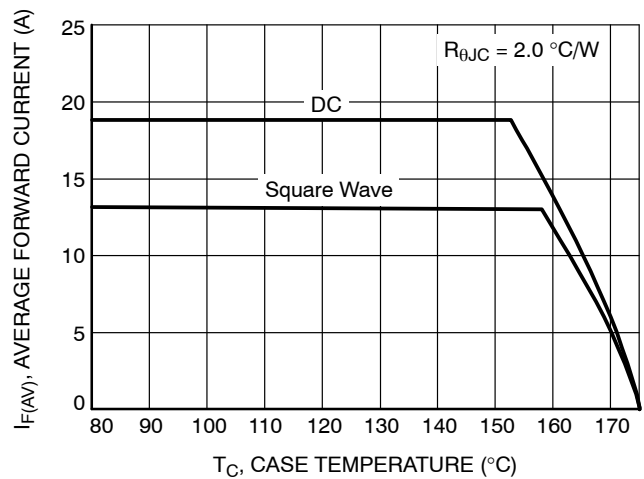


Figure 6. Current Derating

TYPICAL CHARACTERISTICS

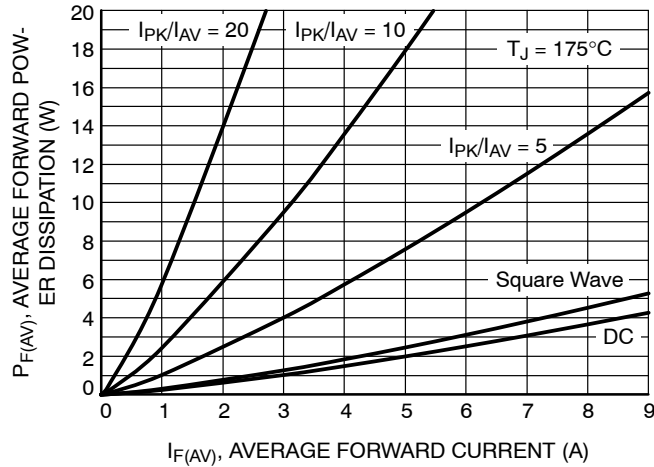


Figure 7. Forward Power Dissipation

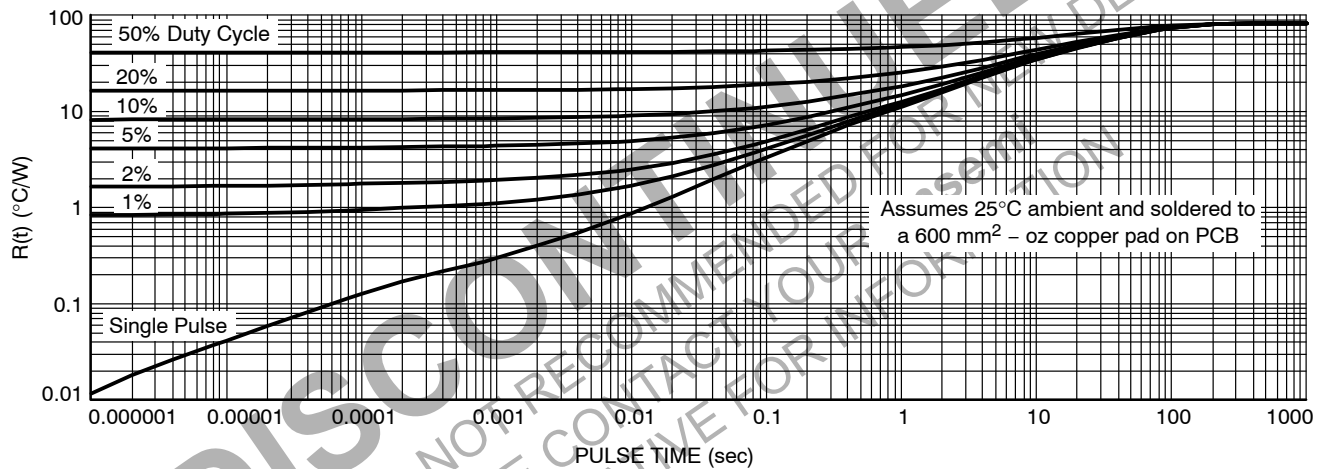


Figure 8. Thermal Characteristics

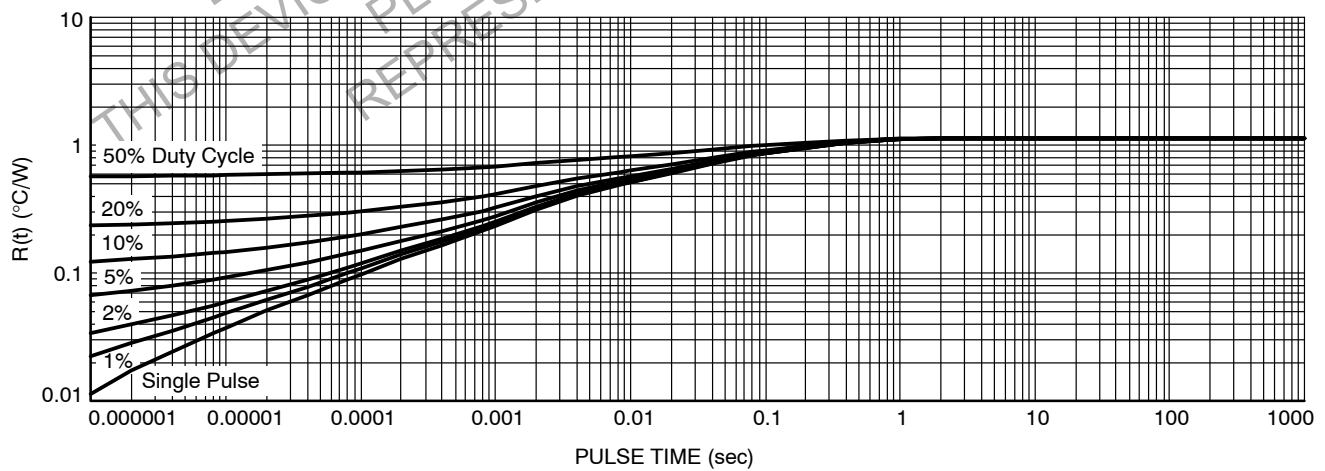


Figure 9. Typical Transient Thermal Response Characteristics, Junction-to-Case



SCALE 2:1

DFN5 5x6, 1.27P
(SO-8FL)
CASE 488AA
ISSUE N

DATE 25 JUN 2018



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.00	---	0.05
b	0.33	0.41	0.51
c	0.23	0.28	0.33
D	5.00	5.15	5.30
D1	4.70	4.90	5.10
D2	3.80	4.00	4.20
E	6.00	6.15	6.30
E1	5.70	5.90	6.10
E2	3.45	3.65	3.85
e	1.27 BSC		
G	0.51	0.575	0.71
K	1.20	1.35	1.50
L	0.51	0.575	0.71
L1	0.125 REF		
M	3.00	3.40	3.80
θ	0°	---	12°

GENERIC
MARKING DIAGRAM*


XXXXXX = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
ZZ = Lot Traceability

*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.



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

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DESCRIPTION:	DFN5 5x6, 1.27P (SO-8FL)	PAGE 1 OF 1

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