

NTS12120MFS, NRVTS12120MFS

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 , $T_C = 138^\circ\text{C}$)	$I_{F(AV)}$	12	A
Peak Repetitive Forward Current, (Rated V_R , Square Wave, 20 kHz, $T_C = 136^\circ\text{C}$)	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 +150	$^\circ\text{C}$
Operating Junction Temperature	T_J	-55 to +150	$^\circ\text{C}$
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	0.587 0.63 0.510 0.587	– 0.83 – 0.68	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	3.4 14.5 3.5 9.2	– 75 – 40	μA μA mA mA

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

TYPICAL CHARACTERISTICS

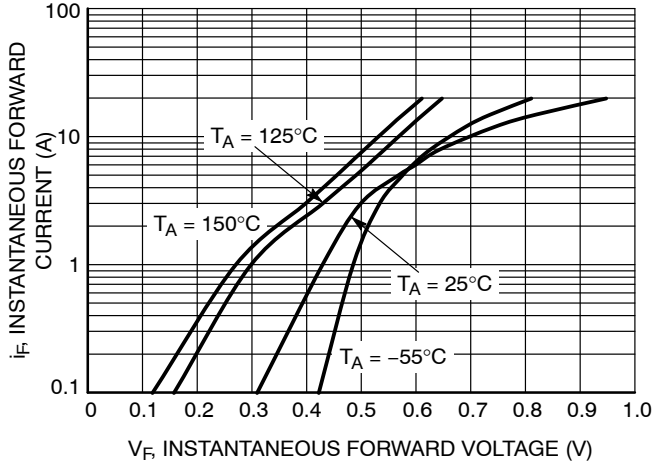


Figure 1. Typical Instantaneous Forward Characteristics

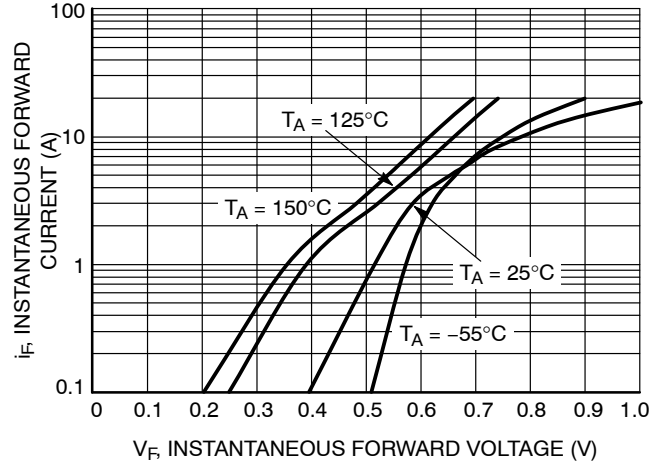


Figure 2. Maximum Instantaneous Forward Characteristics

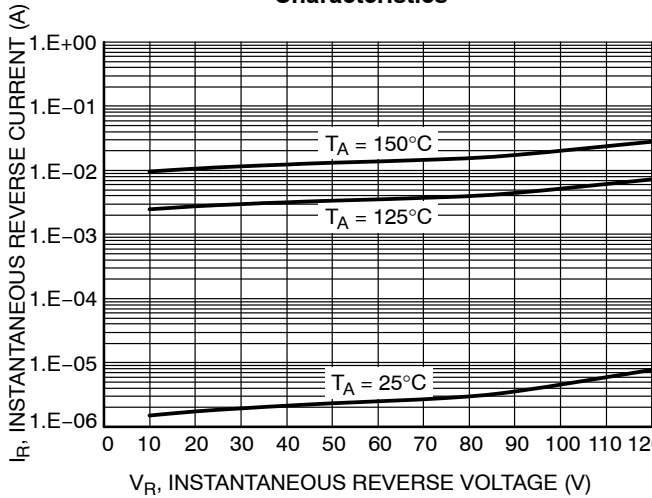


Figure 3. Typical Reverse Characteristics

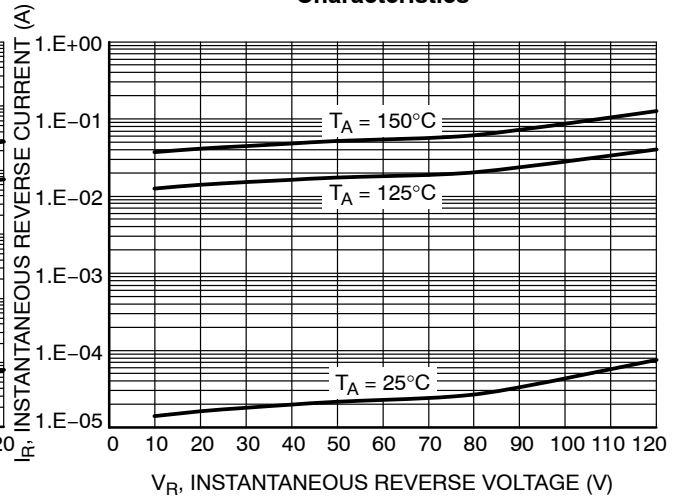


Figure 4. Maximum Reverse Characteristics

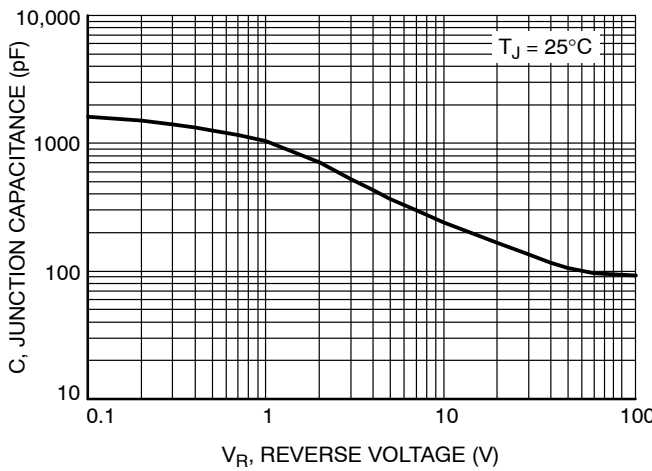


Figure 5. Typical Junction Capacitance

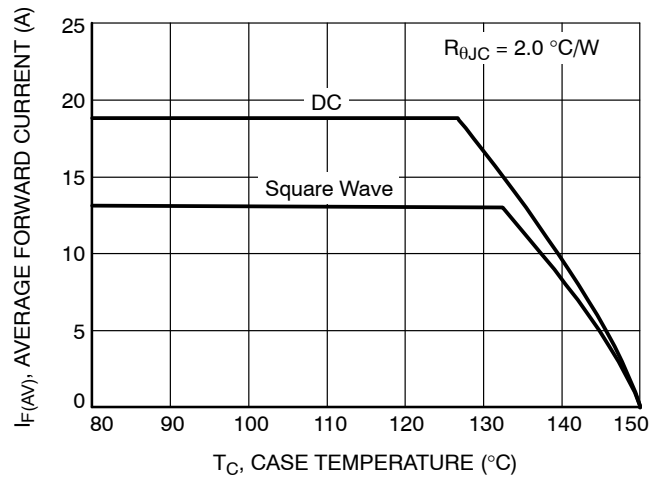


Figure 6. Current Derating

TYPICAL CHARACTERISTICS

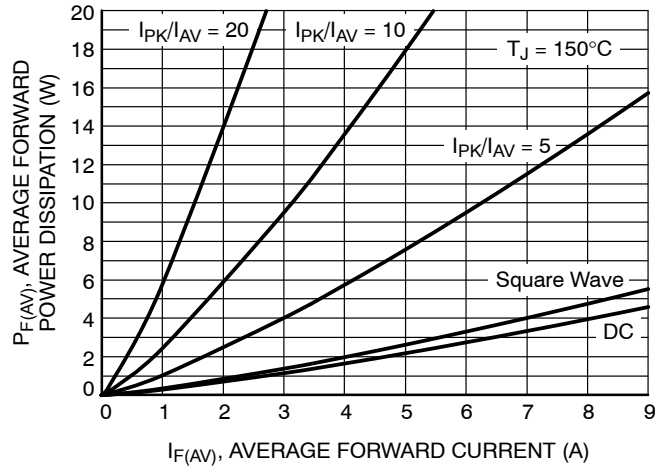


Figure 7. Forward Power Dissipation

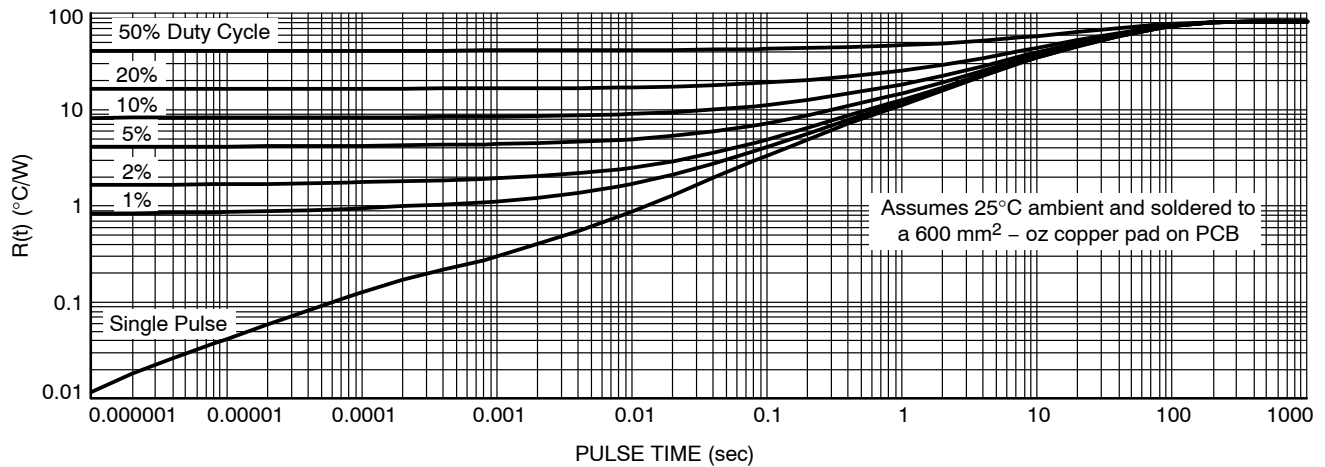


Figure 8. Thermal Characteristics

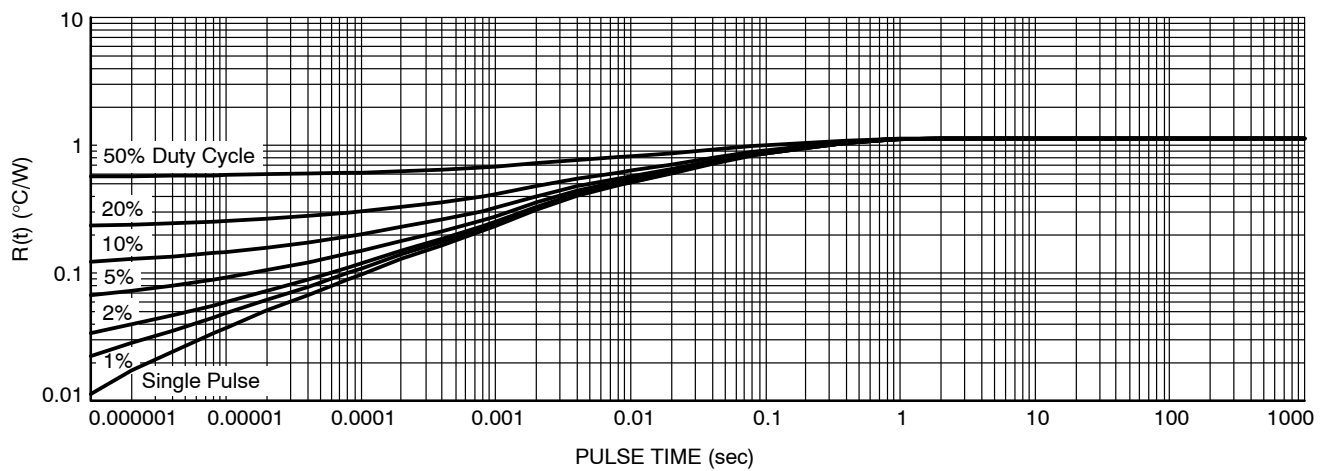


Figure 9. Typical Transient Thermal Response Characteristics, Junction-to-Case

NTS12120MFS, NRVTS12120MFS

PACKAGE DIMENSIONS

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

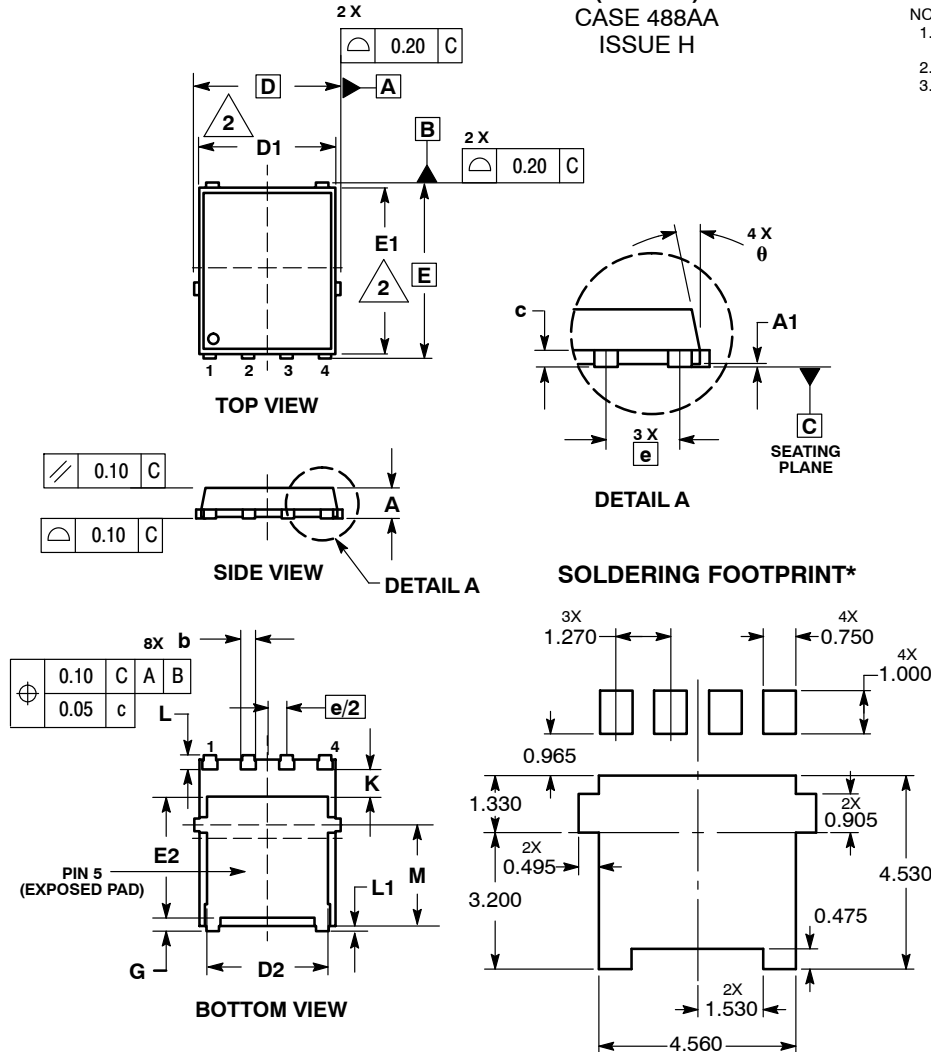
NOTES:

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	5.15 BSC		
D1	4.70	4.90	5.10
D2	3.80	4.00	4.20
E	6.15 BSC		
E1	5.70	5.90	6.10
E2	3.45	3.65	3.85
e	1.27 BSC		
G	0.51	0.61	0.71
K	1.20	1.35	1.50
L	0.51	0.61	0.71
L1	0.05	0.17	0.20
M	3.00	3.40	3.80
θ	0°	---	12°

STYLE 2:

- PIN 1. ANODE
- ANODE
- ANODE
- NO CONNECT
- CATHODE



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

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NTS12120MFS/D



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