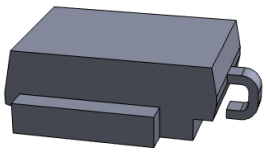
Transient Voltage Suppressors Family

Transient Voltage Suppressor (TVS) will effectively limit the transient voltage to a safe level. The YSN8Wxxx series has been designed to protect sensitive automotive circuits against surges defined in ISO7637-2/ISO16750-2 and against electrostatic discharges according ISO10605. The YSN8Wxxx series device could compatible with high-end circuits where low leakage current and high junction temperature are required to provide reliability and stability over time.

Features

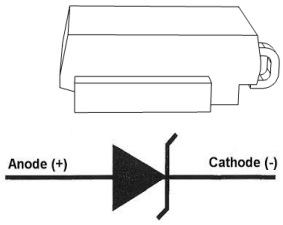
- High current capability
- Low Forward Voltage Drop
- Low reverse current
- Low thermal resistance
- Excellent high temperature stability
- Low power loss and high efficiency
- High forward surge capability
- Meets ISO7637-2 surge specification
- Meets ISO16750-2 surge specification
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified

DO-218



Pin Information

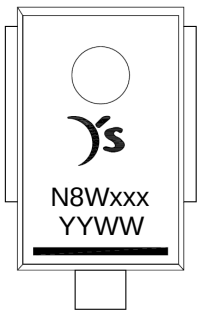
Polarity: Heatsink is anode



Application

- High peak power
- High-temperature
- Clamping diode
- Load switching and lighting

Marking Information



Mechanical Data

- **Case:** DO-218 outline plastic package
- **Terminals:** Matte tin plated, solderable per MIL-STD-750, Method 2026, J-STD-002 and JESD 22-B102
- Molding Compound Flammability Rating:UL94-0
- HE3 suffix meets JESD 201 class 2 whisker test
- **Polarity**: Heatsink is anode

Primary Characteristics	
V_{WM}	10 to 43 V
V_{BR}	11.1 to 52.8 V
P_{PPM} (10 x 1000 uS)	6600 W
P_{PPM} (10 x 10000 uS)	5200 W
P_D	8 W
I_{FSM}	700 A
Polarity	Uni-directional
Diode variation	Single

Maximum Ratings (TA = 25 °C unless otherwise noted)

Parameter		Symbol	Value	Units
Peak pulse power dissipation	10/1000 μs waveform	P_{PPM}	6600	W
	10/10 000 μs waveform		5200	
Power dissipation on infinite heatsink at TC = 25 °C		P_D	8.0	W
Peak forward surge current 8.3 ms single half sine-wave		I_{FSM}	700	A
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +175	°C

Electrical Characteristics (TA = 25 °C unless otherwise noted)

Part Number	Breakdown Voltage V_{BR} (V)		Test Current I_T (mA)	Stand-OFF Voltage V_{WM} (V)	Maximum Reverse Leakage at V_{WM} I_D (uA)	Maximum Leakage at V_{WM} T_J = 175 ℃ I_D (uA)	Max. Peak Pulse Current at 10/1000 us Waveform (A)	Maximum Clamping Voltage at I_{PPM} V_C (V)
	Min.	Max.						
YSN8W10	11.1	13.6	5.0	10.0	15	250	351	18.8
YSN8W10A		12.3	5.0	10.0	15	250	388	17.0
YSN8W11	12.2	14.9	5.0	11.0	10	150	328	20.1
YSN8W11A		13.5	5.0	11.0	10	150	363	18.2
YSN8W12	13.3	16.3	5.0	12.0	10	150	300	22.0
YSN8W12A		14.7	5.0	12.0	10	150	332	19.9
YSN8W13	14.4	17.6	5.0	13.0	10	150	277	23.8
YSN8W13A		15.9	5.0	13.0	10	150	307	21.5
YSN8W14	15.6	19.1	5.0	14.0	10	150	256	25.8
YSN8W14A		17.2	5.0	14.0	10	150	284	23.2
YSN8W15	16.7	20.4	5.0	15.0	10	150	245	26.9
YSN8W15A		18.5	5.0	15.0	10	150	270	24.4
YSN8W16	17.8	21.8	5.0	16.0	10	150	229	28.8
YSN8W16A		19.7	5.0	16.0	10	150	254	26.0
YSN8W17	18.9	23.1	5.0	17.0	10	150	216	30.5
YSN8W17A		20.9	5.0	17.0	10	150	239	27.6
YSN8W18	20.0	24.4	5.0	18.0	10	150	205	32.2
YSN8W18A		22.1	5.0	18.0	10	150	226	29.2
YSN8W20	22.2	27.1	5.0	20.0	10	150	184	35.8
YSN8W20A		24.5	5.0	20.0	10	150	204	32.4
YSN8W22	24.4	29.8	5.0	22.0	10	150	168	39.4
YSN8W22A		26.9	5.0	22.0	10	150	186	35.5
YSN8W24	26.7	32.6	5.0	24.0	10	150	153	43.0
YSN8W24A		29.5	5.0	24.0	10	150	170	38.9
YSN8W26	28.9	35.3	5.0	26.0	10	150	142	46.6
YSN8W26A		31.9	5.0	26.0	10	150	157	42.1
YSN8W28	31.1	38.0	5.0	28.0	10	150	132	50.1
YSN8W28A		34.4	5.0	28.0	10	150	145	45.4
YSN8W30	33.3	40.7	5.0	30.0	10	150	123	53.5
YSN8W30A		36.8	5.0	30.0	10	150	136	48.4
YSN8W33	36.7	44.9	5.0	33.0	10	150	112	59.0
YSN8W33A		40.6	5.0	33.0	10	150	124	53.3
YSN8W36	40.0	48.9	5.0	36.0	10	150	103	64.3
YSN8W36A		44.2	5.0	36.0	10	150	114	58.1
YSN8W40	44.4	54.3	5.0	40.0	10	150	92.4	71.4
YSN8W40A		49.1	5.0	40.0	10	150	102	64.5
YSN8W43	47.8	58.4	5.0	43.0	10	150	86	76.7
YSN8W43A		52.8	5.0	43.0	10	150	95.1	69.4

Note: For all types maximum VF = 1.8 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

Thermal Characteristics (TA = 25 °C unless otherwise noted)			
Parameter	**Symbol**	**Value**	**Units**
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.90	°C/W

Typical Performance Characteristics

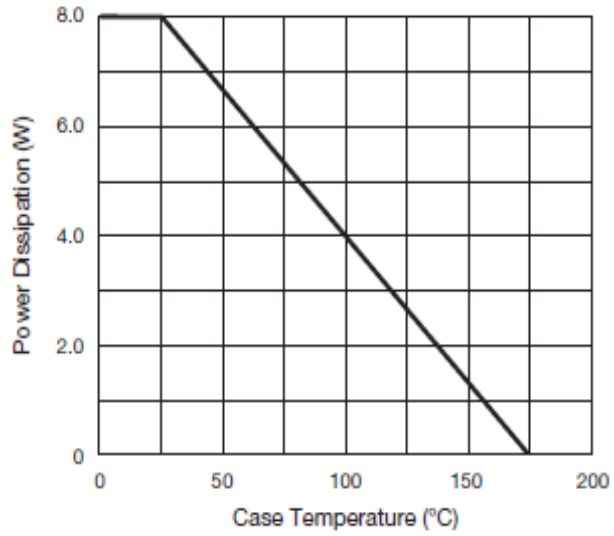


Fig. 1 - Power Derating Curve

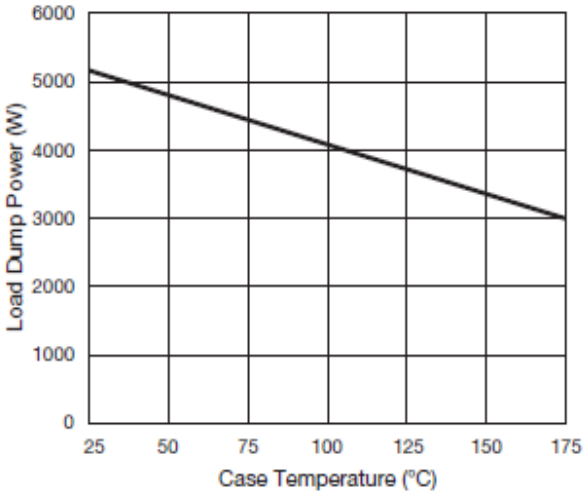


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

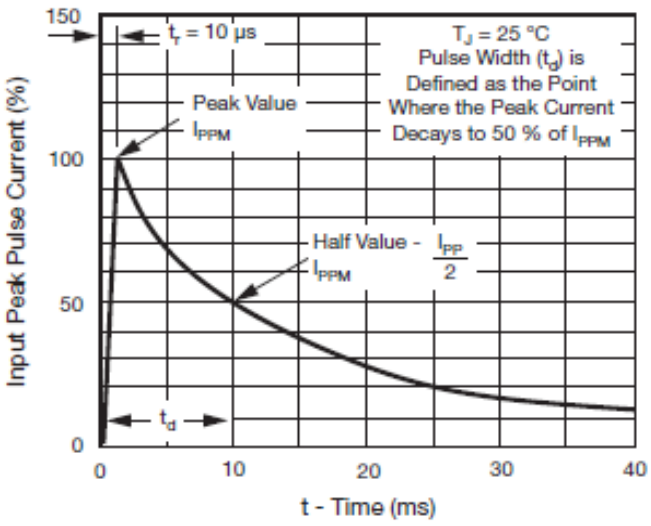


Fig. 3 - Pulse Waveform

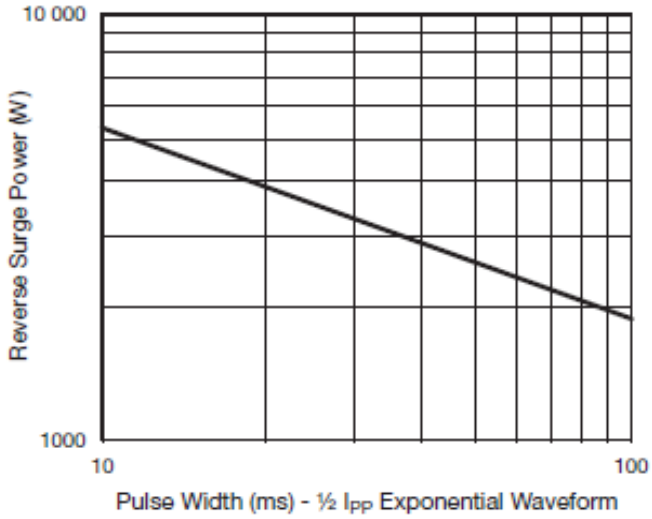


Fig. 4 - Reverse Power Capability

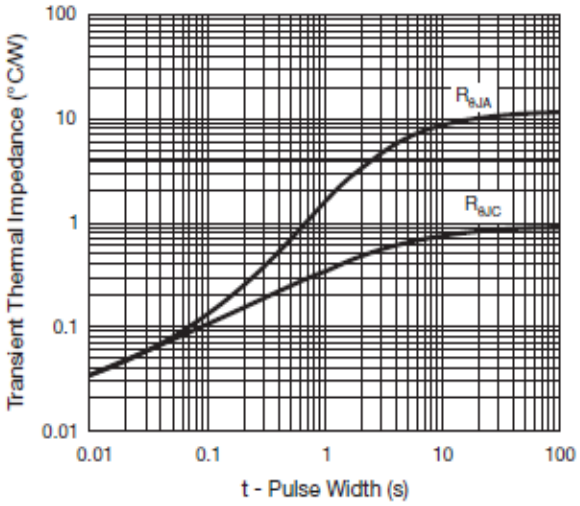


Fig. 5 - Typical Transient Thermal Impedance

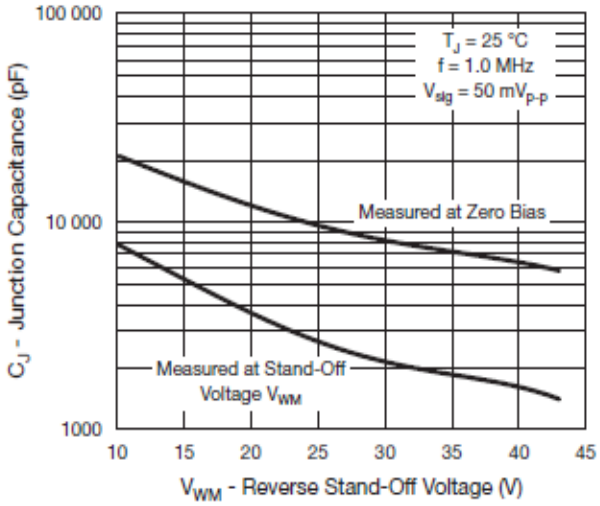
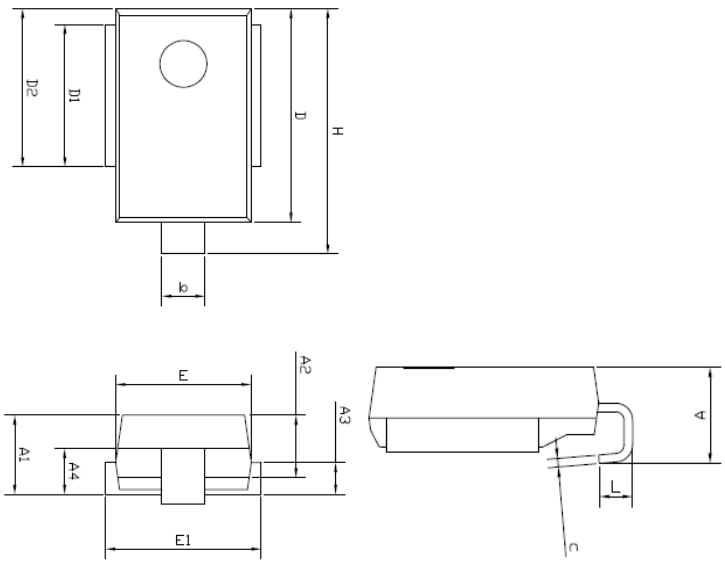


Fig. 6 - Typical Junction Capacitance

Phisical Dimensions

DO-218



NOTE :
1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.
2. COPLANARITY : 0.1mm
3. DIMENSION L IS MEASURED IN GAUGE PLANE.

SYMBOLS	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	MAX
A	4.70	-	5.70
A1	4.70	5.00	5.25
A2	3.45	3.95	4.25
A3	1.70	2.00	2.50
A4	2.65	3.10	3.55
b	2.30	-	3.00
c	0.45	-	0.90
D	13.20	13.50	13.80
D1	8.70	9.00	9.30
D2	9.70	10.00	10.30
E	8.20	8.50	8.80
E1	9.50	-	10.00
H	15.00	15.50	16.00
L	1.50	2.00	2.50

Foot Print Recommendation (mm)