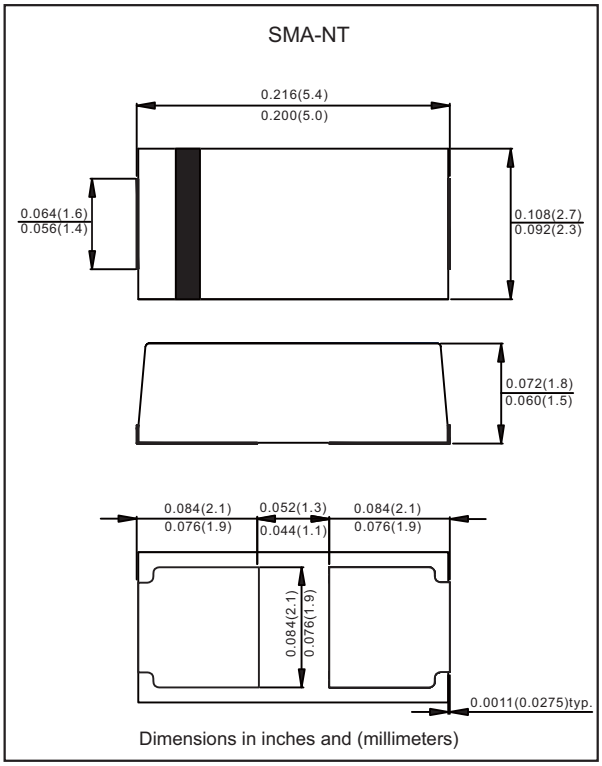
ASAKNT Series

1000W Dual Flat No-Lead Unidirectional and Bidirectional Transient Voltage Suppressors 20V-800V

Features

- Well package design with solder pad on the bottom for best thermal performance
- Leads on two opposing sides of the body
- 1000W peak pulse power capability with a 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Uni and Bidirectional unit
- Glass passivated chip junction
- Excellent clamping capability
- Low incremental surge resistance
- Lead-free parts meet RoHS requirements
- Compliant to Halogen-free

Package outline



Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SMA-NT
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band(Uni-directional types only)
- Mounting Position : Any

Maximum ratings (AT T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Peak power dissipation	with a 10/1000μs waveform, Note 1, 2 & Fig. 1	P_{PPM}	1000	W
Peak pulse current	with a 10/1000μs waveform	I_{PPM}	See Table	A
Steady state power dissipation	at T_L=75°C, Note 2	$P_{M(AV)}$	3.0	W
Typical thermal resistance	Junction to case Junction to ambient	$R_{\theta JC}$ $R_{\theta JA}$	30 50	°C/W
Operating junction temperature range		T_J	-55 to +150	°C
Storage temperature range		T_{STG}	-65 to +175	°C

Notes 1: Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C per Fig. 2
2: Mounted on copper pad area of 0.2"x0.2" (5.0x5.0 mm) per Fig 5

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Electrical characteristics (at T_A=25°C unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand-off Voltage	Breakdown Voltage @I_T		Test Current	Maximum Clamping Voltage @I_{PP}		Maximum Reverse Leakage Current	Marking Code	
		V_{RWM}	$V_{BR\,Min}$	$V_{BR\,Max}$	I_T	V_C	I_{PP}	I_R@V_{RWM}		
		Volts	Volts	Volts	mA	Volts	A	μA	Uni	Bi
ASAKNT20A	ASAKNT20CA	20	22.2	24.5	1.0	32.4	30.9	5	KBV	KXV
ASAKNT22A	ASAKNT22CA	22	24.4	26.9	1.0	35.5	28.2	5	KBX	KXX
ASAKNT24A	ASAKNT24CA	24	26.7	29.5	1.0	38.9	25.7	5	KBZ	KXZ
ASAKNT26A	ASAKNT26CA	26	28.9	31.9	1.0	42.1	23.8	5	KCE	KYE
ASAKNT28A	ASAKNT28CA	28	31.1	34.4	1.0	45.4	22.0	5	KCG	KYG
ASAKNT30A	ASAKNT30CA	30	33.3	36.8	1.0	48.4	20.7	5	KCK	KYK
ASAKNT33A	ASAKNT33CA	33	36.7	40.6	1.0	53.3	18.8	5	KCM	KYM
ASAKNT36A	ASAKNT36CA	36	40.0	44.2	1.0	58.1	17.2	5	KCP	KYP
ASAKNT40A	ASAKNT40CA	40	44.4	49.1	1.0	64.5	15.5	5	KCR	KYR
ASAKNT43A	ASAKNT43CA	43	47.8	52.8	1.0	69.4	14.4	5	KCT	KYT
ASAKNT45A	ASAKNT45CA	45	50.0	55.3	1.0	72.7	13.8	5	KCV	KYV
ASAKNT48A	ASAKNT48CA	48	53.3	58.9	1.0	77.4	12.9	5	KCX	KYX
ASAKNT51A	ASAKNT51CA	51	56.7	62.7	1.0	82.4	12.1	5	KCZ	KYZ
ASAKNT54A	ASAKNT54CA	54	60.0	66.3	1.0	87.1	11.5	5	KRE	KZE
ASAKNT58A	ASAKNT58CA	58	64.4	71.2	1.0	93.6	10.7	5	KRG	KZG
ASAKNT60A	ASAKNT60CA	60	66.7	73.7	1.0	96.8	10.3	5	KRK	KZK
ASAKNT64A	ASAKNT64CA	64	71.1	78.6	1.0	103	9.7	5	KRM	KZM
ASAKNT70A	ASAKNT70CA	70	77.8	86.0	1.0	113	8.9	5	KRP	KZP
ASAKNT75A	ASAKNT75CA	75	83.3	92.1	1.0	121	8.3	5	KRR	KZR
ASAKNT78A	ASAKNT78CA	78	86.7	95.8	1.0	126	7.9	5	KRT	KZT
ASAKNT85A	ASAKNT85CA	85	94.4	104	1.0	137	7.3	5	KRV	KZV
ASAKNT90A	ASAKNT90CA	90	100	111	1.0	146	6.9	5	KRX	KZX
ASAKNT100A	ASAKNT100CA	100	111	123	1.0	162	6.2	5	KRZ	KZZ
ASAKNT110A	ASAKNT110CA	110	122	135	1.0	177	5.7	5	KSE	KVE
ASAKNT120A	ASAKNT120CA	120	133	147	1.0	193	5.2	5	KSG	KVG
ASAKNT130A	ASAKNT130CA	130	144	159	1.0	209	4.8	5	KSK	KVK
ASAKNT150A	ASAKNT150CA	150	167	185	1.0	243	4.1	5	KSM	KVM
ASAKNT160A	ASAKNT160CA	160	178	197	1.0	259	3.9	5	KSP	KVP
ASAKNT170A	ASAKNT170CA	170	189	209	1.0	275	3.6	5	KSR	KVR
ASAKNT180A	ASAKNT180CA	180	201	222	1.0	292	3.4	5	KST	KVT
ASAKNT200A	ASAKNT200CA	200	224	247	1.0	324	3.1	5	KSV	KVV
ASAKNT220A	ASAKNT220CA	220	246	272	1.0	356	2.8	5	KSX	KVX
ASAKNT250A	ASAKNT250CA	250	279	309	1.0	405	2.47	5	KSZ	KVZ
ASAKNT300A	ASAKNT300CA	300	335	371	1.0	486	2.06	5	KTE	KUE
ASAKNT350A	ASAKNT350CA	350	391	432	1.0	567	1.77	5	KTG	KUG
ASAKNT400A	ASAKNT400CA	400	447	494	1.0	648	1.55	5	KTK	KUK
ASAKNT440A	ASAKNT440CA	440	492	544	1.0	713	1.41	5	KTM	KUM
ASAKNT500A	ASAKNT500CA	500	558	618	1.0	810	1.24	5	KTP	KUP
ASAKNT550A	ASAKNT550CA	550	614	680	1.0	891	1.13	5	KTR	KUR
ASAKNT600A	ASAKNT600CA	600	670	741	1.0	971	1.03	5	KTT	KUT
ASAKNT650A	ASAKNT650CA	650	726	803	1.0	1052	0.96	5	KTV	KUV
ASAKNT700A	ASAKNT700CA	700	782	865	1.0	1133	0.89	5	KTX	KUX
ASAKNT750A	ASAKNT750CA	750	837	927	1.0	1213	0.83	5	KTZ	KUZ
ASAKNT800A	ASAKNT800CA	800	893	989	1.0	1298	0.78	5	KXE	KYE

Notes 1: Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices

2: Transient Voltage Suppressors (TVS) are devices used to protect vulnerable circuits from electrical overstress such as that caused by electrostatic discharge, inductive load switching and induced lightning. Within the TVS, damaging voltage spikes are limited by clamping or avalanche action of a rugged silicon pn junction which reduces the amplitude of the transient to a nondestructive level. See Fig. 6 & Fig. 7

Rating and characteristic curves

Fig.1 - Pealk Pulse Power Rating Curve

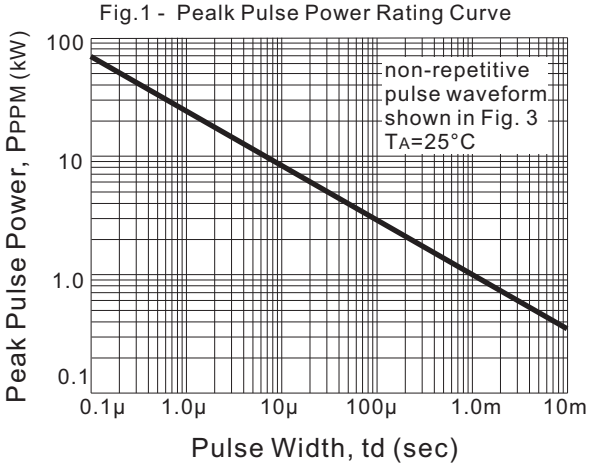


Fig.2 - Pulse Derating Curve

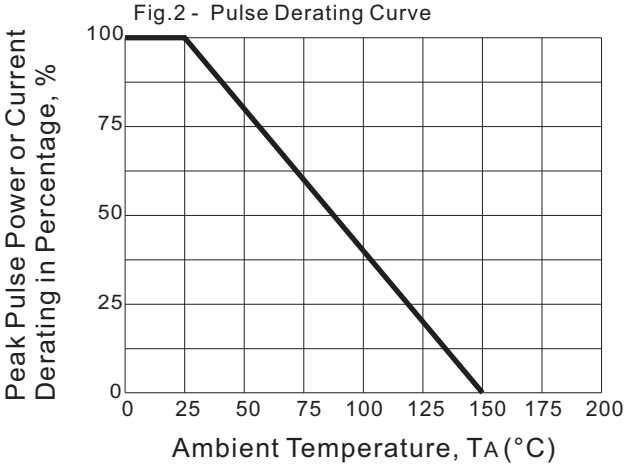


Fig.3 - Pulse Waveform

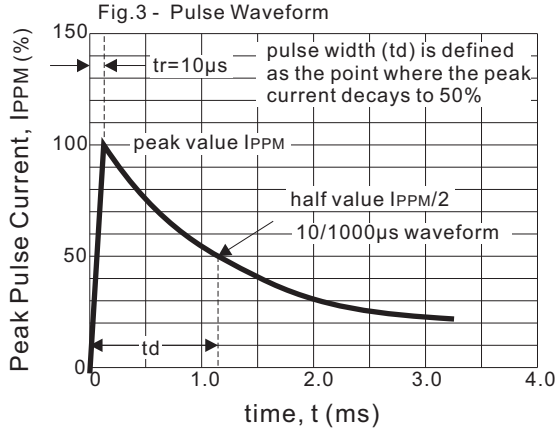


Fig.4 - Typical Junction Capacitance

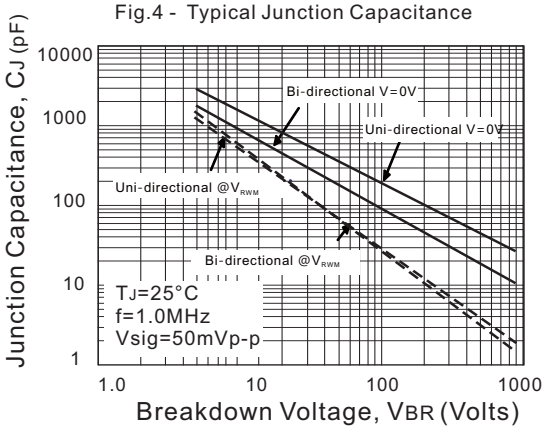
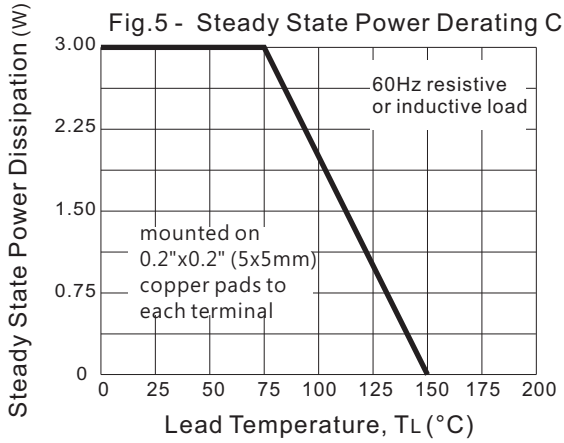


Fig.5 - Steady State Power Derating Curve



Rating and characteristic curves

Fig. 6 - Transients of several thousand volts can be clamped to a safe level by the TVS

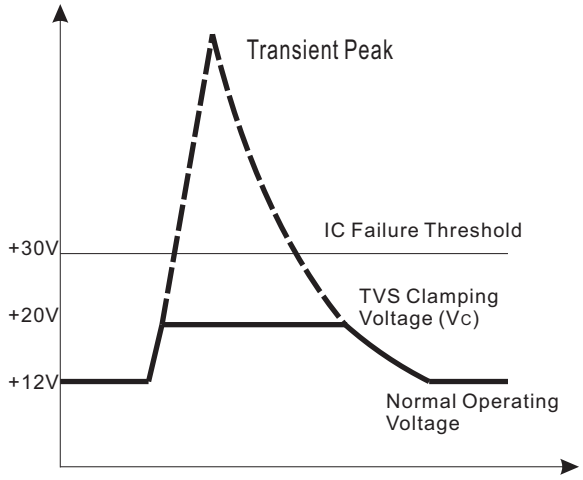
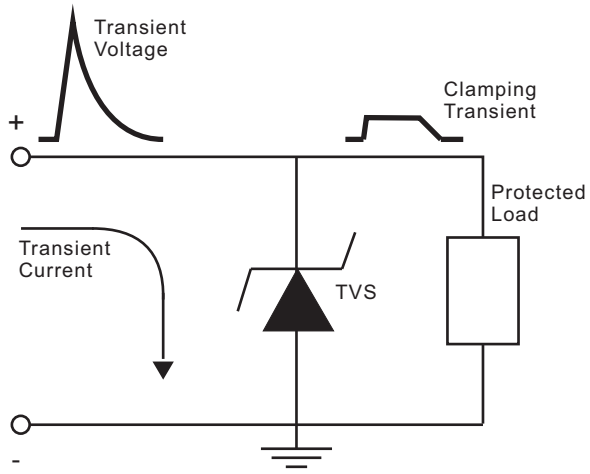


Fig. 7 - Transient current is divered to ground thru TVS; the voltage seen by the protected load is limited to the clamping voltage level



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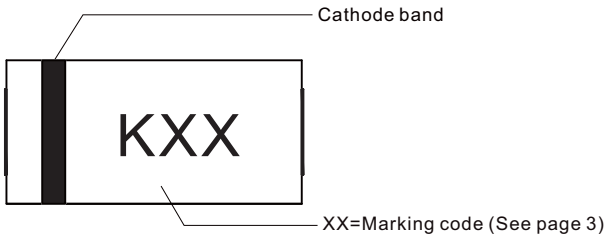
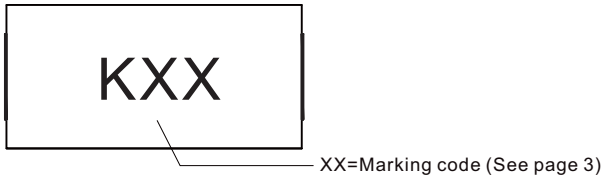
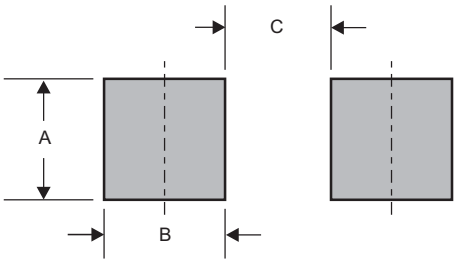
Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

Marking

Type number	Example
Uni-Directional	
Bi-Directional	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMA-NT	0.084 (2.10)	0.084 (2.10)	0.044 (1.10)