

# SURGE PROTECTORS

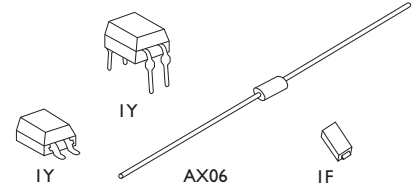
## Varistors

### Features

1. Bidirectional surge absorption is possible.
2. Low junction capacitance
3. SMD is available.

### Application

1. Telephone set surge absorption
2. Digital communications circuit surge absorption
3. ISDN terminal surge absorption



Type No.	Color Code	Absolute Maximum Ratings				Electrical Characteristics (Ta=25°C)						Outline	
		I <sub>o</sub>	I <sub>FSM</sub>	T <sub>stg</sub>	T <sub>J</sub>	V <sub>F1</sub>	I <sub>F1</sub>	V <sub>F2</sub>	I <sub>F2</sub>	V <sub>F3</sub>	I <sub>F3</sub>	Package	Figure
		[mA]	[A]	[°C]	[°C]	[V]	[mA]	[V]	[mA]	[V]	[mA]		
VR-60B(A)	Orange	500	16	-30~125	125	1.5	1000	—	—	0.2	0.02	AX06	3
-60BP(A)								0.58±0.03	1				
-51B(A)	*3	150	7.5	-30~125	125	1.8±0.25	1	2.1±0.25	10	2.4±0.25	70	AX06	4
-61B(A)	*4					2.3±0.25		2.75±0.25		3.1±0.25			
-61FI <sup>*1</sup>	—	370	7.5	-55~150	150	2.3±0.25	1	2.75±0.25	10	3.1±0.25	70	IF	72
VR YA6 <sup>*2</sup>	—	310	8	-30~125	125	2.3±0.25	1	2.75±0.25	10	3.1±0.25	70	IY	29-2 (SMD 30-2)
15 <sup>*2</sup>		140	6.5			5.75±0.62		6.875±0.625		7.75±0.62			

\* 1: On alumina substrate

\* 3: Silver-Silver

\* 2: On alumina substrate, 1 element operation

\* 4: Orange-Red

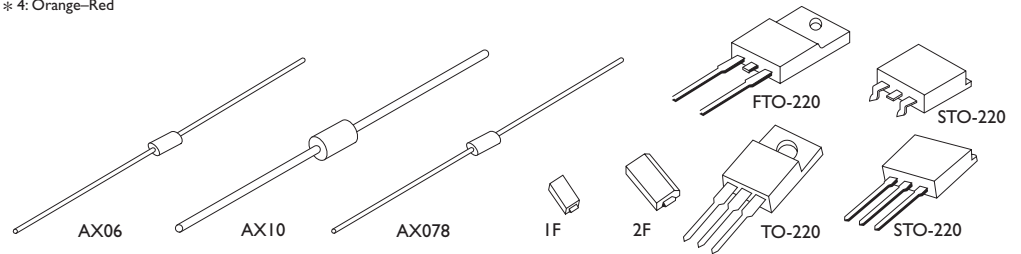
## Trunklers

### Features

1. High speed response
2. Absorption energy tolerance capacity
3. Narrow clamping voltage width

### Application

1. IC protection for electronic telephones
2. IC protection against abnormal voltage



Type No.	Color Code	Absolute Maximum Ratings			Electrical Characteristics (Ta=25°C)								Outline	
		PRSM	T <sub>stg</sub>	T <sub>J</sub>	V <sub>RM</sub> (max)	V <sub>BR</sub> (std)	Conditions I <sub>R</sub>	I <sub>R</sub> (max)	Conditions V <sub>R</sub>	rZ (max)	V <sub>CLI</sub> (max)	Conditions I <sub>PP</sub>	Package	Figure
		[W]	[°C]	[°C]	[V]	[V]								
ST02D-82	Silver	200	-40~150	150	67	82	1	5	67	—	118	1.7	AX078	5
-170	Red				145	170			145			0.75		
-200	Yellow				170	200			170			0.7		
ST03-58FI	—	300	-40~150	150	45	58	1	5	45	—	80	4	IF	72
ST03D-82	Silver	300	-40~150	150	67	82	1	5	67	—	118	2.5	AX10	6
-170	Red				145	170			145			1.1		
-200	Yellow				170	200			170			1		
SFT03D-82	—	300	-40~150	150	67	82	1	5	67	—	118	2.5	FTO-220	83-2
DL03-58FI	—	300	-40~150	150	45	58	1	5	45	—	80	4	IF	72
DL04-18FI	—	400			13	18			13			0.09		
ST04-16	Silver	400	-40~150	150	13.6	16	1	5	13.6	0.09	23	15	AX06	2
-27					23	27			23			10		
ST04-16FI	—	400	-40~150	150	13.6	16	1	5	13.6	0.09	23	15	IF	72
-27FI					23	27			23			10		
ST20-47F2	—	2000	-40~150	150	38	47	1	5	38	—	67	50	2F	73
ST50D-27	—	5000	-40~150	150	23	27	1	5	23	0.09	38	130	TO-220	80-5
ST50V-27F	—	5000	-40~150	150	23	27	1	5	23	0.09	40	130	STO-220	76-3 (SMD 74-4)
ST70-27F		7000										180		

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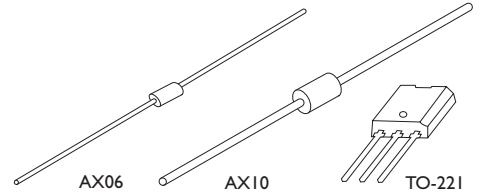
## Transient Surge Suppressors

### Features

1. Bidirectional characteristics
2. High speed response
3. Large surge current capacity
4. Repeated use against surges is possible

### Application

1. Lightning surge adsorption for communications circuits
2. Lightning surge adsorption for transmitters and switchboards
3. Surge protection for ISDN terminals



Type No.	Absolute Maximum Ratings					Electrical Characteristics					Outline			
	V <sub>DRM</sub>	I <sub>TSM</sub>	Waveform Conditions	T <sub>stg</sub>	T <sub>j</sub>	V <sub>BO</sub> (min)	I <sub>DRM</sub> (max)	Conditions V <sub>D</sub>	I <sub>H</sub> (min)	C <sub>j</sub> (max)	Package	Figure		
	[V]	[A]		[°C]	[°C]	[V]	[μA]		[V]	[mA]			[pF]	
KA3Z07	5	30	10/1000	-40~125	125	5.5	10	5	50	100*	AX06	2		
18	15					15								
KA10N14	120	100	10/1000	-40~125	125	130	10	120	100	40	AX10	6		
KA10R25	190					190		90						
KT10L07	58	100	10/1000	-40~125	125	65	10	58	100	180	TO-221	91		
08	63					70		63						
★ KT10N12	100	100	10/1000	-40~125	125	110	10	100	100	140				
14	120					130		120						
KT10R25	190	100	10/1000	-40~125	125	220	10	190	100	90				
★ KT15N12	100	150	10/1000	-40~125	125	110	10	100	100	200				
14	120					130		120						
KT15R25	190	150	10/1000	-40~125	125	220	10	190	100	150				
KT40N14	120	400	10/1000	-40~125	125	130	10	120	200	300			TO-221	90
		1000	15/100											
★ KT40R23	170	400	10/1000	-40~125	125	200	10	170	200	200				
	1000	15/100												

\*: V<sub>D</sub>=0V    ★: Under development