

# Protection devices

## Your system immunity

Selection guide



July 2007

## Transient voltage suppressor – TVS clamping diodes

### LNB voltage regulator protection in SMD and Axial

Part number unidirectional	Lightning surge capability <sup>(1)(2)</sup> (kV)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> @ I <sub>R</sub> (V)				V <sub>CL</sub> max @ I <sub>PP</sub> <sup>(1)(2)</sup>		Package
				Min	Typ	Max	(mA)	(V)	(A)	
LNBTVS3-220	3	20	1	22	23.1	24.2	1	35	250	DO-201
LNBTVS3-220U	3	20	1	22	23.1	24.2	1	35	250	SMB
LNBTVS4-220	4	20	1	22	23.1	24.2	1	35	331	DO-201
LNBTVS4-220S	4	20	1	22	23.1	24.2	1	35	331	SMC
LNBTVS4-221	4	20	1	22	23.1	24.2	1	32	331	DO-201
LNBTVS4-221S	4	20	1	22	23.1	24.2	1	32	331	SMC
LNBTVS4-222S	4	20	1	22	23.1	24.2	1	30	331	SMC
LNBTVS6-220S	6	20	1	22	23.1	24.2	1	35	500	SMC
LNBTVS6-221S	6	20	1	22	23.1	24.2	1	32	500	SMC

1. IEC 61000-4-5 R = 12Ω

2. 8/20μs

### 160W Transils for automotive LIN Bus

Part number bidirectional	Power <sup>(1)</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>(2)</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>(1)</sup>		C max <sup>(3)</sup> (pF)	Package
				(V)	(mA)	(V)	(A)		
ESDLIN1524BJ	160/200	15/24	0.5	17.1/25.4	5	35	50	20	SOD-323

1. 8/20μs waveform

2. Pulse test: t<sub>p</sub> < 50ms

3. V<sub>R</sub> = 0V, F = 1MHz

### 200W Transils in STmite

Part number unidirectional	Power <sup>(1)</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>(1)</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
SM2T3V3A	200	3.3	500	3.6	1	6.8	30	150	STmite
SM2T6V8A	200	5	50	6.4	10	9.2 <sup>(8)</sup>	19.6 <sup>(8)</sup>	150	STmite
SM2T14A	200	12	1	13.3	1	19.9 <sup>(8)</sup>	9 <sup>(8)</sup>	150	STmite
SM2T18A	200	16	1	17.1	1	26 <sup>(8)</sup>	7 <sup>(8)</sup>	150	STmite
SM2T27A	200	24	1	25.7	1	28.9 <sup>(8)</sup>	4.6 <sup>(8)</sup>	150	STmite

1. 10/1000μs waveform

### 350W low forward Transil in Flip-Chip

Part number unidirectional	Power <sup>(1)</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>(1)</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
LFTVS7-1F3	350	5.5	0.5	7	15	10	1	125	Flip-Chip 400μm

1. 8/20 μs waveform

2. Pulse test: t<sub>p</sub> < 50ms

## Transient voltage suppressor – TVS clamping diodes

### 400W Transil in Axial

Part number Unidirectional/ bidirectional (B)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> <sup>3</sup> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>J</sub> max (pF)	Package
				(V)	(mA)	(V)	(A)		
BZW04-5V8/B	400	5.8	1000	6.45	10	13.4	174	175	DO-15
BZW04-10/B	400	10.2	5	11.4	1	21.7	106	175	DO-15
BZW04-13/B	400	12.8	5	14.3	1	27.2	85	175	DO-15
BZW04-15/B	400	15.3	1	17.1	1	32.5	71	175	DO-15
BZW04-26/B	400	25.6	1	28.5	1	53.5	43	175	DO-15
BZW04-28/B	400	28.2	1	31.4	1	59.0	39	175	DO-15
BZW04-31/B	400	30.8	1	34.2	1	64.3	36	175	DO-15
BZW04-33/B	400	33.3	1	37.1	1	69.7	33	175	DO-15
BZW04-48/B	400	47.8	1	53.2	1	100	23	175	DO-15
BZW04-239/B	400	239	1	266	1	494	4.6	175	DO-15
BZW04-299/B	400	299	1	332	1	618	3.7	175	DO-15
BZW04-342/B	400	342	1	380	1	706	3.2	175	DO-15
BZW04-376/B	400	376	1	418	1	776	3.0	175	DO-15

### 400W Transil in SMA

Part number Unidirectional (A)/ bidirectional (CA)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> <sup>3</sup> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>J</sub> max (pF)	Package
				(V)	(mA)	(V)	(A)		
SMAJ5.0A-TR/CA-TR	400	5	800	6.4	10	13.4	174	175	SMA
SMAJ6.0A-TR/CA-TR	400	6	800	6.7	10	13.7	170	175	SMA
SMAJ6.5A-TR/CA-TR	400	6.5	500	7.2	10	14.5	160	175	SMA
SMAJ8.5A-TR/CA-TR	400	8.5	10	9.4	1	19.5	124	175	SMA
SMAJ10A-TR/CA-TR	400	10	5	11.1	1	21.7	106	175	SMA
SMAJ12A-TR/CA-TR	400	12	5	13.3	1	25.3	91	175	SMA
SMAJ13A-TR/CA-TR	400	13	1	14.4	1	27.2	85	175	SMA
SMAJ15A-TR/CA-TR	400	15	1	16.7	1	32.5	71	175	SMA
SMAJ18A-TR/CA-TR	400	18	1	20	1	39.3	59	175	SMA
SMAJ22A-TR/CA-TR	400	22	1	24.4	1	48.3	48	175	SMA
SMAJ24A-TR/CA-TR	400	24	1	26.7	1	50	46	175	SMA
SMAJ26A-TR/CA-TR	400	26	1	28.9	1	53.5	43	175	SMA
SMAJ28A-TR/CA-TR	400	28	1	31.1	1	59	39	175	SMA
SMAJ30A-TR/CA-TR	400	30	1	33.3	1	64.3	36	175	SMA
SMAJ33A-TR/CA-TR	400	33	1	36.7	1	69.7	33	175	SMA
SMAJ40A-TR/CA-TR	400	40	1	44.4	1	84	27	175	SMA
SMAJ43A-TR/CA-TR	400	43	1	47.8	1	91	25	175	SMA
SMAJ48A-TR/CA-TR	400	48	1	53.3	1	100	23	175	SMA
SMAJ58A-TR/CA-TR	400	58	1	64.4	1	121	19	175	SMA
SMAJ70A-TR/CA-TR	400	70	1	77.8	1	146	16	175	SMA
SMAJ85A-TR/CA-TR	400	85	1	94.4	1	178	13	175	SMA
SMAJ130A-TR/CA-TR	400	130	1	144	1	265	9	175	SMA
SMAJ170A-TR/CA-TR	400	170	1	189	1	353	6.5	175	SMA
SMAJ188A-TR/CA-TR	400	188	1	209	1	388	6	175	SMA

1: 8/20μs waveform

2: Pulse test: t<sub>p</sub> < 50ms

3: For bidirectional types having V<sub>RM</sub> ≤ 10V, I<sub>RM</sub> is multiplied by 2

# Transil

## Transient voltage suppressor – TVS clamping diodes

### Transky™: Low forward voltage 400W Transils in STmite

Part number Unidirectional	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max <sup>2</sup> @ V <sub>RM</sub> <sup>3</sup> (μA)	V <sub>CL</sub> min @ I <sub>PP</sub> <sup>1</sup>		V <sub>F</sub> max @ 0.85A <sup>5</sup> (V)	T <sub>j</sub> max (°C)	Package
				(V)	(A)			
SMTY18AM	400	16	4000	20	3	0.48	150	STmite

### 600W Transils in Axial

Part number Unidirectional / bidirectional (B)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max <sup>2</sup> @ V <sub>RM</sub> <sup>3</sup> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
BZW06-5V8/B	600	5.8	1000	6.45	10	13.4	298	175	DO-15
BZW06-6V4/B	600	6.4	500	7.13	10	14.5	276	175	DO-15
BZW06-10/B	600	10.2	5	11.4	1	21.7	184	175	DO-15
BZW06-13/B	600	12.8	5	14.3	1	27.2	147	175	DO-15
BZW06-15/B	600	15.3	1	17.1	1	32.5	123	175	DO-15
BZW06-19/B	600	18.8	1	20.9	1	39.3	102	175	DO-15
BZW06-23/B	600	23.1	1	25.7	1	48.3	83	175	DO-15
BZW06-26/B	600	25.6	1	28.5	1	53.5	75	175	DO-15
BZW06-28/B	600	28.2	1	31.4	1	59.0	68	175	DO-15
BZW06-31/B	600	30.8	1	34.2	1	64.3	62	175	DO-15
BZW06-33/B	600	33.3	1	37.1	1	69.7	57	175	DO-15
BZW06-48/B	600	47.8	1	53.2	1	100	40	175	DO-15
BZW06-273/B	600	273	1	304	1	564	7.1	175	DO-15
BZW06-342/B	600	342	1	380	1	706	5.7	175	DO-15
BZW06-376/B	600	376	1	418	1	776	5.7	175	DO-15

### 600W Transils in Axial

Part number Unidirectional A/ bidirectional (CA)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max <sup>2</sup> @ V <sub>RM</sub> <sup>3</sup> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
P6KE6V8A/CA	600	5.8	1000	6.45	10	13.4	298	175	DO-15
P6KE7V5A/CA	600	6.4	500	7.13	10	14.5	276	175	DO-15
P6KE15A/CA	600	12.8	1	14.3	1	27.2	147	175	DO-15
P6KE18A/CA	600	15.3	1	17.1	1	32.5	123	175	DO-15
P6KE27A/CA	600	23.1	1	25.7	1	48.3	83	175	DO-15
P6KE30A/CA	600	25.6	1	28.5	1	53.5	75	175	DO-15
P6KE33A/CA	600	28.2	1	31.4	1	59	68	175	DO-15
P6KE36A/CA	600	30.8	1	34.2	1	64.3	62	175	DO-15
P6KE39A/CA	600	33.3	1	37.1	1	69.7	57	175	DO-15
P6KE56A/CA	600	47.8	1	53.2	1	100	40	175	DO-15
P6KE68A/CA	600	58.1	1	64.6	1	121	33	175	DO-15
P6KE82A/CA	600	70.1	1	77.9	1	146	27	175	DO-15
P6KE200A/CA	600	171	1	190	1	353	11.3	175	DO-15
P6KE250A/CA	600	213	1	237	1	442	9	175	DO-15
P6KE300A/CA	600	256	1	285	1	529	7.6	175	DO-15
P6KE400A/CA	600	342	1	380	1	706	5.7	175	DO-15
P6KE440A/CA	600	376	1	418	1	776	5.2	175	DO-15

1: 8/20μs waveform

2: Pulse test: t<sub>p</sub> < 50ms

3: For bidirectional types having V<sub>RM</sub> ≤ 10V, I<sub>RM</sub> is multiplied by 2

4: T<sub>amb</sub> = 85°C

5: Pulse test t<sub>p</sub> = 500μs, δ < 2%

## Transient voltage suppressor – TVS clamping diodes

### 600W Transils in SMB

Part number Unidirectional (A)/ bidirectional (CA)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (µA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
SM6T6V8A/CA	600	5.8	1000	6.45	10	13.4	298	150	SMB
SM6T7V5A/CA	600	6.4	500	7.13	10	14.5	276	150	SMB
SM6T10A/CA	600	8.55	10	9.5	1	18.6	215	150	SMB
SM6T12A/CA	600	10.2	5	11.4	1	21.7	184	150	SMB
SM6T15A/CA	600	12.8	5	14.3	1	27.2	147	150	SMB
SM6T18A/CA	600	15.3	5	17.1	1	32.5	123	150	SMB
SM6T22A/CA	600	18.8	5	20.9	1	39.3	102	150	SMB
SM6T24A/CA	600	20.5	5	22.8	1	42.8	93	150	SMB
SM6T27A/CA	600	23.1	5	25.7	1	48.3	83	150	SMB
SM6T30A/CA	600	25.6	5	28.5	1	53.5	75	150	SMB
SM6T33A/CA	600	28.2	5	31.4	1	59	68	150	SMB
SM6T36A/CA	600	30.8	5	34.2	1	64.3	62	150	SMB
SM6T39A/CA	600	33.3	5	37.1	1	69.7	57	150	SMB
SM6T68A/CA	600	58.1	5	64.6	1	121	33	150	SMB
SM6T100A/CA	600	85.5	5	95	1	178	22.5	150	SMB
SM6T150A/CA	600	128	5	143	1	265	15	150	SMB
SM6T200A/CA	600	171	5	190	1	353	11.3	150	SMB
SM6T220A/CA	600	188	5	209	1	388	10.3	150	SMB
SMBJ5.0A-TR/CA-TR	600	5	800	6.4	10	13.4	298	175	SMB
SMBJ6.0A-TR/CA-TR	600	6	800	6.7	10	13.7	290	175	SMB
SMBJ6.5A-TR/CA-TR	600	6.5	500	7.2	10	14.5	276	175	SMB
SMBJ10A-TR/CA-TR	600	10	5	11.1	1	21.7	184	175	SMB
SMBJ12A-TR/CA-TR	600	12	5	13.3	1	25.3	157	175	SMB
SMBJ13A-TR/CA-TR	600	13	1	14.4	1	27.2	147	175	SMB
SMBJ15A-TR/CA-TR	600	15	1	16.7	1	32.5	123	175	SMB
SMBJ18A-TR/CA-TR	600	18	1	20	1	39.3	102	175	SMB
SMBJ22A-TR/CA-TR	600	22	1	24.4	1	48.3	83	175	SMB
SMBJ24A-TR/CA-TR	600	24	1	26.7	1	50	80	175	SMB
SMBJ26A-TR/CA-TR	600	26	1	28.9	1	53.5	75	175	SMB
SMBJ28A-TR/CA-TR	600	28	1	31.1	1	59	68	175	SMB
SMBJ30A-TR/CA-TR	600	30	1	33.3	1	64.3	62	175	SMB
SMBJ33A-TR/CA-TR	600	33	1	36.7	1	69.7	57	175	SMB
SMBJ40A-TR/CA-TR	600	40	1	44.4	1	84	48	175	SMB
SMBJ48A-TR/CA-TR	600	48	1	53.3	1	100	40	175	SMB
SMBJ58A-TR/CA-TR	600	58	1	64.4	1	121	33	175	SMB
SMBJ70A-TR/CA-TR	600	70	1	77.8	1	146	27	175	SMB
SMBJ85A-TR/CA-TR	600	85	1	94.4	1	178	22.5	175	SMB
SMBJ130A-TR/CA-TR	600	130	1	144	1	265	15	175	SMB
SMBJ170A-TR/CA-TR	600	170	1	189	1	353	11.3	175	SMB
SMBJ188A-TR/CA-TR	600	188	1	209	1	388	10.3	175	SMB

### 600W Transils in SMB flat

Part number Unidirectional	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (µA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
SMBF5.0A	600	5	800	6.4	10	13.4	298	150	SMB flat

1: 8/20µs waveform  
2: Pulse test: t<sub>p</sub> < 50ms

# Transil

## Transient voltage suppressor – TVS clamping diodes

### High junction temperature 600W Transils in SMA

Part number Unidirectional (A)/ bidirectional (CA)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)		V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup> (V)		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>3</sup> (V)		T <sub>j</sub> max (°C)	Package
			25°C	85°C	(mA)	(V)	(A)			
SMA6J5.0A-TR/CA-TR	600	5	10	50	6.4	10	13.4	298	175	SMA
SMA6J6.0A-TR/CA-TR	600	6	10	50	6.7	10	13.7	290	175	SMA
SMA6J6.5A-TR/CA-TR	600	6.5	10	50	7.2	10	14.5	276	175	SMA
SMA6J8.5A-TR/CA-TR	600	8.5	10	50	9.4	1	18.7	205	175	SMA
SMA6J10A-TR/CA-TR	600	10	0.2	1	11.1	1	19.6	184	175	SMA
SMA6J12A-TR/CA-TR	600	12	0.2	1	13.3	1	23.5	157	175	SMA
SMA6J13A-TR/CA-TR	600	13	0.2	1	14.4	1	23.9	147	175	SMA
SMA6J15A-TR/CA-TR	600	15	0.2	1	16.7	1	27.7	123	175	SMA
SMA6J18A-TR/CA-TR	600	18	0.2	1	20	1	33.2	102	175	SMA
SMA6J20A-TR/CA-TR	600	20	0.2	1	22.2	1	36.8	93	175	SMA
SMA6J24A-TR/CA-TR	600	24	0.2	1	26.7	1	44.3	80	175	SMA
SMA6J26A-TR/CA-TR	600	26	0.2	1	28.9	1	47.9	75	175	SMA
SMA6J28A-TR/CA-TR	600	28	0.2	1	31.1	1	51.6	68	175	SMA
SMA6J33A-TR/CA-TR	600	33	0.2	1	36.7	1	60.8	57	175	SMA
SMA6J40A-TR/CA-TR	600	40	0.2	1	44.4	1	73.6	48	175	SMA
SMA6J48A-TR/CA-TR	600	48	0.2	1	53.3	1	88.4	40	175	SMA
SMA6J58A-TR/CA-TR	600	58	0.2	1	64.4	1	100	33	175	SMA
SMA6J70A-TR/CA-TR	600	70	0.2	1	77.8	1	120	27	175	SMA
SMA6J85A-TR/CA-TR	600	85	0.2	1	94	1	146	22.5	175	SMA
SMA6J100A-TR/CA-TR	600	100	0.2	1	111	1	172	19	175	SMA
SMA6J130A-TR/CA-TR	600	130	0.2	1	144	1	223	15	175	SMA
SMA6J154A-TR/CA-TR	600	154	0.2	1	171	1	265	12.6	175	SMA
SMA6J170A-TR/CA-TR	600	170	0.2	1	189	1	292	11.3	175	SMA
SMA6J188A-TR/CA-TR	600	188	0.2	1	209	1	323	10.3	175	SMA

### High temperature 600W Transils in SMB

Part number Unidirectional (A)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup> (V)		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>3</sup> (V)		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
SM6HT24A	600	20.5	2	22.8	1	33.2	18	175	SMB
SM6HT27A	600	23.1	2	25.7	1	37.5	16	175	SMB
SM6HT30A	600	25.6	2	28.5	1	41.5	14.5	175	SMB
SM6HT36A	600	30.8	2	34.2	1	49.9	12	175	SMB
SM6HT39A	600	33.3	2	37.1	1	53.9	11.1	175	SMB
SM6HT43A	600	36.8	2	40.9	1	59.3	10.1	175	SMB

- 1: 8/20μs waveform  
 2: Pulse test: t<sub>p</sub> < 50ms  
 3: 10/1000μs waveform

## Transient voltage suppressor – TVS clamping diodes

### Digital Purpose 600W Transils in SMB

Part number Unidirectional	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>3</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
SMLVT3V3	600	3.3	200	4.1	1	10.3	200	175	SMB

### TRANSKY 600W Transils in SMB

Part number Unidirectional (A)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>3</sup>		V <sub>F</sub> max @ 1A <sup>2</sup> (V)	Package
				(V)	(mA)	(V)	(A)		
SMTY5.0A	600	5	10	6.4	10	9	43.5	0.48	SMA
SMTY12A	600	12	20	13.2	1	18.5	31	0.48	SMA

### 1500W Transils in Axial

Part number Unidirectional (A)/ bidirectional (CA)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>3</sup>		T <sub>j</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
1N5908 (uni)	1500	5	300	6	1	7.6 <sup>3</sup>	30 <sup>3</sup>	175	DO-201
1.5KE6V8A/CA	1500	5.8	1000	6.45	10	13.4	746	175	DO-201
1.5KE7V5A/CA	1500	6.4	500	7.13	10	14.5	690	175	DO-201
1.5KE12A/CA	1500	10.2	5	11.4	1	21.7	461	175	DO-201
1.5KE15A/CA	1500	12.8	1	14.3	1	27.2	368	175	DO-201
1.5KE18A/CA	1500	15.3	1	17.1	1	32.5	308	175	DO-201
1.5KE22A/CA	1500	18.8	1	20.9	1	39.3	254	175	DO-201
1.5KE24A/CA	1500	20.5	1	22.8	1	42.8	234	175	DO-201
1.5KE30A/CA	1500	25.6	1	28.5	1	53.5	187	175	DO-201
1.5KE33A/CA	1500	28.2	1	31.4	1	59.0	169	175	DO-201
1.5KE36A/CA	1500	30.8	1	34.2	1	64.3	156	175	DO-201
1.5KE39A/CA	1500	33.3	1	37.1	1	69.7	143	175	DO-201
1.5KE47A/CA	1500	40.2	1	44.7	1	84	119	175	DO-201
1.5KE56A/CA	1500	47.8	1	53.2	1	100	100	175	DO-201
1.5KE62A/CA	1500	53	1	58.9	1	111	90	175	DO-201
1.5KE68A/CA	1500	58.1	1	64.6	1	121	83	175	DO-201
1.5KE82A/CA	1500	70.1	1	77.9	1	146	69	175	DO-201
1.5KE100A/CA	1500	85.5	1	95	1	178	56	175	DO-201
1.5KE180A/CA	1500	154	1	171	1	317	31.5	175	DO-201
1.5KE200A/CA	1500	171	1	190	1	353	28	175	DO-201
1.5KE220A/CA	1500	188	1	209	1	388	26	175	DO-201
1.5KE250A/CA	1500	213	1	237	1	442	23	175	DO-201
1.5KE300A/CA	1500	256	1	285	1	529	19	175	DO-201
1.5KE350A/CA	1500	299	1	332	1	618	16	175	DO-201
1.5KE400A/CA	1500	342	1	380	1	706	14	175	DO-201
1.5KE440A/CA	1500	376	1	418	1	776	13	175	DO-201

1: 8/20μs waveform

2: Pulse test: t<sub>p</sub> < 50ms

3: 10/1000μs waveform

# Transil

## Transient voltage suppressor – TVS clamping diodes

### 1500W Transils in SMC

Part number Unidirectional (A)/ bidirectional (CA)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>pp</sub> <sup>1</sup>		T <sub>J</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
SM5908 (uni)	1500	5	300	6	1	7.6 <sup>3</sup>	30 <sup>3</sup>	150	SMC
SM15T6V8A/CA	1500	5.8	1000	6.45	10	13.4	746	150	SMC
SM15T7V5A/CA	1500	6.4	500	7.13	10	14.5	690	150	SMC
SM15T10A/CA	1500	8.55	10	9.5	1	18.6	538	150	SMC
SM15T12A/CA	1500	10.2	5	11.4	1	21.7	461	150	SMC
SM15T15A/CA	1500	12.8	5	14.3	1	27.2	368	150	SMC
SM15T18A/CA	1500	15.3	5	17.1	1	32.5	308	150	SMC
SM15T22A/CA	1500	18.8	5	20.9	1	39.3	254	150	SMC
SM15T24A/CA	1500	20.5	5	22.8	1	42.8	234	150	SMC
SM15T27A/CA	1500	23.1	5	25.7	1	48.3	207	150	SMC
SM15T30A/CA	1500	25.6	5	28.5	1	53.5	187	150	SMC
SM15T33A/CA	1500	28.2	5	31.4	1	59	169	150	SMC
SM15T36A/CA	1500	30.8	5	34.2	1	64.3	156	150	SMC
SM15T39A/CA	1500	33.3	5	37.1	1	69.7	143	150	SMC
SM15T68A/CA	1500	58.1	5	64.6	1	121	83	150	SMC
SM15T100A/CA	1500	85.5	5	95	1	178	56	150	SMC
SM15T150A/CA	1500	128	5	143	1	265	38	150	SMC
SM15T200A/CA	1500	171	5	190	1	353	28	150	SMC
SM15T220A/CA	1500	188	5	209	1	388	26	150	SMC
SMCJ5.0A-TR/CA-TR	1500	5	800	6.4	10	13.4	746	175	SMC
SMCJ6.0A-TR/CA-TR	1500	6	800	6.7	10	13.7	730	175	SMC
SMCJ6.5A-TR/CA-TR	1500	6.5	500	7.2	10	14.5	690	175	SMC
SMCJ10A-TR/CA-TR	1500	10	5	11.1	1	21.7	461	175	SMC
SMCJ12A-TR/CA-TR	1500	12	5	13.3	1	25.3	394	175	SMC
SMCJ13A-TR/CA-TR	1500	13	1	14.4	1	27.2	368	175	SMC
SMCJ15A-TR/CA-TR	1500	15	1	16.7	1	32.5	308	175	SMC
SMCJ18A-TR/CA-TR	1500	18	1	20	1	39.3	254	175	SMC
SMCJ22A-TR/CA-TR	1500	22	1	24.4	1	48.3	207	175	SMC
SMCJ24A-TR/CA-TR	1500	24	1	26.7	1	50	200	175	SMC
SMCJ26A-TR/ CA-TR	1500	26	1	28.9	1	53.5	187	175	SMC
SMCJ28A-TR/CA-TR	1500	28	1	31.1	1	59	169	175	SMC
SMCJ30A-TR/CA-TR	1500	30	1	33.3	1	64.3	156	175	SMC
SMCJ33A-TR/CA-TR	1500	33	1	36.7	1	69.7	143	175	SMC
SMCJ40A-TR/CA-TR	1500	40	1	44.4	1	84	119	175	SMC
SMCJ48A-TR/CA-TR	1500	48	1	53.3	1	100	100	175	SMC
SMCJ58A-TR/CA-TR	1500	58	1	64.4	1	121	83	175	SMC
SMCJ70A-TR/CA-TR	1500	70	1	77.8	1	146	69	175	SMC
SMCJ85A-TR/CA-TR	1500	85	1	94.4	1	178	56	175	SMC
SMCJ130A-TR/CA-TR	1500	130	1	144	1	265	38	175	SMC
SMCJ170A-TR/CA-TR	1500	170	1	189	1	353	28	175	SMC
SMCJ188A-TR/CA-TR	1500	188	1	209	1	388	26	175	SMC

1: 8/20μs waveform

2: Pulse test: t<sub>p</sub> < 50ms



## Transient voltage suppressor – TVS clamping diodes

### 500W Transils Axial

Part number Unidirectional/ bidirectional (B)	Power <sup>1</sup> (W)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub> <sup>2</sup>		V <sub>CL</sub> max @ I <sub>PP</sub> <sup>1</sup>		T <sub>J</sub> max (°C)	Package
				(V)	(mA)	(V)	(A)		
BZW50-10/B	5000	10	5	11.1	1	23.4	2564	175	R6
BZW50-15/B	5000	15	5	16.6	1	35	1714	175	R6
BZW50-22/B	5000	22	5	24.4	1	51	1177	175	R6
BZW50-27/B	5000	27	5	30	1	62	968	175	R6
BZW50-33/B	5000	33	5	36.6	1	76	789	175	R6
BZW50-39/B	5000	39	5	43.3	1	90	667	175	R6
BZW50-47/B	5000	47	5	52	1	108	556	175	R6
BZW50-56/B	5000	56	5	62.2	1	129	465	175	R6
BZW50-68/B	5000	68	5	75.6	1	157	382	175	R6
BZW50-82/B	5000	82	5	91	1	189	317	175	R6
BZW50-100/B	5000	100	5	111	1	228	263	175	R6
BZW50-120/B	5000	120	5	133	1	274	219	175	R6
BZW50-150/B	5000	150	5	166	1	343	175	175	R6
BZW50-180/B	5000	180	5	200	1	410	146	175	R6

### Automotive Transils in Axial

Part number	V <sub>BR</sub> min T <sub>C</sub> = 25°C (V)	V <sub>RM</sub> (V)	I <sub>RM</sub> max (mA)		V <sub>BR</sub> max T <sub>C</sub> = 25°C (V)	I <sub>R</sub> T <sub>C</sub> = 25°C (mA)	V <sub>CL</sub> max T <sub>C</sub> = 25°C (V)	I <sub>PP</sub> T <sub>C</sub> = 25°C (A)	C typ (nF)	Package
			T <sub>C</sub> = 25°C	T <sub>C</sub> = 85°C						
LDP24A	25	24	50	300	32	1	38	30	8	R6

# Transil

## Transient voltage suppressor – TVS clamping arrays

### ESD protection – unidirectional diodes array

Part number	Number of lines	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub>		R <sub>d</sub> typ (mΩ)	C typ @ OV bias (pF)	Package
				(V)	(mA)			
ESDA18-1F2	1	10	0.5	16	1		230	Flip-Chip 500μm
ESDALC6V1-1M2	1	3	0.1	6.1	1	500	22	SOD-882
ESDA14V2L	2	12	5	14.2	1	650	90	SOT-23
ESDA25L	2	24	1	25	1	1000	50	SOT-23
ESDA25W	2	24	1	25	1	1100	65	SOT323-3L
ESDA6V1 DCB	2	3	1	6.1	1	500	155	QFN
ESDA14V2DCB	2	3	0.1	14.2	1	800	80	QFN
ESDA5V3L	2	3	2	5.3	1	280	220	SOT-23
ESDA6V1L	2	5.25	20	6.1	1	350	140	SOT-23
ESDALC6V1P3	2	3	0.1	6.1	1	1500(max)	12	SC89-3L
ESDALC6V1M3	2	5	0.5	6.1	1	1100	11	SOT883
ESDA6V1M6	4	3	0.5	6.1	1	1000	70	Micro QFN-6L
ESDALC6V1M6	4	3	0.07	6.1	1	2000	12	Micro QFN-6L
ESDA14V2SC5	4	12	5	14.2	1	650	100	SOT23-5L
ESDA14V2SC6	4	12	5	14.2	1	650	100	SOT23-6L
ESDA17SC6	4	14	0.075	17	1	700	85	SOT23-6L
ESDA19SC6	4	15	0.1	19	1	800	80	SOT23-6L
ESDA25SC6	4	24	1	25	1	1000	60	SOT23-6L
ESDA25W5	4	24	1	25	1	1900	30	SOT323-3L
ESDA5V3SC5	4	3	2	5.3	1	230	280	SOT23-5L
ESDA5V3SC6	4	3	2	5.3	1	230	280	SOT23-6L
ESDA6V1-4F2	4	5	10	6.1	1	350	250(max)	Flip-Chip 500μm
ESDA6V1P6	4	3	0.5	6.1	1	1500	70	SOT-666
ESDA6V1SC5	4	5.25	20	6.1	1	350	190	SOT23-5L
ESDA6V1SC6	4	5.25	20	6.1	1	350	190	SOT23-6L
ESDA6V1W5	4	3	1	6.1	1	350	90	SOT323-5L
ESDALC6V1P6	4	3	0.5	6.1	1	1500	12	SOT-666
ESDALC6V1W5	4	3	1	6.1	1	1100	12	SOT323-5L
ESDALC6V1P5	4	3	0.5	6.1	1	1500	12	SOT-665
ESDALC6V1F2	4	3	0.5	6.1	1	1000	12	Flip-Chip 500μm
ESDALC6V1-5P6	5	3	0.07	6.1	1	2000	12	SOT-666
ESDA6V1-5M6	5	3	0.5	6.1	1	1000	70	Micro QFN-6L
ESDALC6V1-5M6	5	3	0.07	6.1	1	2000	12	Micro QFN-6L
ESDA6V1-5P6	5	3	0.5	6.1	1	1500	70	SOT-666
ESDA6V1-5SC6	5	3	1	6.1	1	590	50	SOT23-6L
ESDA17-5SC6	5	14	0.075	17	1	1000	35	SOT23-6L
ESDA19-5SC6	5	15	0.1	19	1	1000	35	SOT23-6L
ESDA6V1-5W6	5	3	1	6.1	1	610	50	SOT323-6L
ESDA6V1U1	6	5	2	6.1	1	500	100	SO-8
ESDA6V1S3	18	5	2	6.1	1	500	120	SO-20

### ESD protection – bidirectional diodes array

Part number	Number of lines	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>R</sub>		R <sub>d</sub> typ (mΩ)	C typ @ OV bias (pF)	Package
				(V)	(mA)			
ESDALC6V1-1BM2	1	3	0.1	6.1	1	650	22	SOD-882
ESDALC6V1-1BT2	1	3	0.1	6.1	1	650	22	Thin SOD-882
ESDAVLC6V1-1BM2	1	3	0.1	6.0	1	1600	7	SOD-882
ESDAVLC6V1-1BT2	1	5	0.1	6.0	1	1600	7	Thin SOD-882
ESDARF01-1BM2	1	0.1	1	0.7	1		3	SOD-882
ESDA14V2-2BF3	2	12	0.5	14.2	1	3200	12	Flip-Chip 400μm
ESDA14V2-4BF2	4	12	1	14.2	1	3200	15(max)	Flip-Chip 500μm
ESDA14V2-4BF3	4	12	0.5	14.2	1	3200	15(max)	Flip-Chip 400μm
ESDA14V2-BP6	4	12	1	14.2	1	1500	20	SOT-666
ESDA6V1-4BF2	4	3	1	6.1	1	1100	35	Flip-Chip 500μm
ESDA6V1-4BC6	4	3	1	6.1	1	450	45	SOT23-6L
ESDA6V1BC6	4	5	1	6.1	1	1350	20	SOT23-6L
ESDA25B1	6	24	2	25	1	1500	15	SO-8
ESDA6V1B1	6	3	2	6.1	1	700	50	SO-8
ESDALC14V2-2BP5	2	12	1	14.2	1	1500	21	SOT-665
ESDALC25-2BP5	2	24	1	25	1	1300	15	SOT-665
ESDAULC6-3BP6	4	5	0.5	6	1	1400	TBD	SOT-666
ESDAULC6-3BF2	4	5	0.5	6	1	1400	TBD	Flip-Chip 500μm

## Transient voltage suppressor – TVS clamping arrays

### USB port protection

Part number	Number of lines	$V_{RM}$ (V)	$I_{RM} \max$ @ $V_{RM}$ ( $\mu A$ )	$V_{BR} \min$ @ $I_R$		C typ <sup>1</sup> (pF)	C typ <sup>2</sup> (pF)	Package
				(V)	(mA)			
USB6B1	2	5.25	10	6	1	15	25	SO-8
USBLC6-4SC6	2	5	2	6	1	3	1.85	SOT23-6L
USBLC6-2SC6	2	5	1	6	1	2.5	1.2	SOT23-6L
USBLC6-2P6	2	5	1	6	1	2.5	1.2	SOT-666
USBULC6-2M6	2	5	0.5	6	1	0.95	0.5	Micro QFN-6L
USBLC16-4M8	2	5	0.05	16	1	2.0	1.0	Micro QFN-8L
USBLC6-2F3	2	3	0.1	6	1	1.2 (max)		Flip-Chip 400 $\mu m$

### High speed interface protection

Part number	Number of lines	$V_{RM}$ (V)	$I_{RM} \max$ @ $V_{RM}$ ( $\mu A$ )	$V_{BR} \min$ @ $I_R$		C typ <sup>1,3</sup> (pF)	C typ <sup>2,3</sup> (pF)	Package
				(V)	(mA)			
DVIULC6-2P6	2	5	0.5	6	1	0.85	0.42	SOT-666
DVIULC6-2M6	2	5	0.5	6	1	0.85	0.42	Micro QFN-6L
HDMIULC6-2P6	2	5	0.5	6	1	0.6 <sup>4</sup>	0.42	SOT-666
HDMIULC6-2M6	2	5	0.5	6	1	0.6 <sup>4</sup>	0.42	Micro QFN-6L
DVIULC6-4SC6	4	5	0.5	6	1	0.85	0.42	SOT23-6L
HDMIULC6-4SC6	4	5	5	6	1	0.85	0.42	SOT23-6L
DSILC6-4P6	4	5	0.5	6	1	2 <sup>5</sup>	1.0 <sup>5</sup>	SOT-666
DSILC6-4F2	4	5	0.5	6	1	2.5 <sup>5</sup>	1.25 <sup>5</sup>	Flip-Chip 500 $\mu m$

### Rail-to-rail protection for xDSL, modem and ethernet

Part number	Number of lines	$V_{RM}$ (V)	$I_R \max$ @ 15V ( $\mu A$ )	C max @ 5V (pF)	$V_C \max$ @ 50mA (V)	IEC61000-4-2 STD level	HBM MII Std 883E class	Package
DA108S1RL	4	18	2	35	1.2	4	3	SO-8
DA112S1RL	6	18	2	35	1.2	4	3	SO-8
DALC112S1	6	18	2	7	1.3	3	3	SO-8
DALC112S1RL	6	18	2	7	1.3	3	3	SO-8
DALC208SC6	4	9	1	7	1.2	4	3	SOT23-6L

1: Capacitance between I/O and GND

2: Capacitance between I/O

3:  $V_R = 0V$ ,  $F = 5MHz$

4:  $V_R = 0V$ ,  $F = 825MHz$

5:  $V_{I/O} = 0V$ ,  $F = 1MHz$

## Transient voltage suppressor – TVS crowbar diodes

### Surge suppressors for telecom intrabuilding and terminals in SMA (30A)

Compliant with ITU-T K20/21

Part number	$I_{PP} \text{ max}^1$ (A)	$V_{RM}$ (V)	$I_{RM} \text{ max}$ $\oplus V_{RM}$ ( $\mu\text{A}$ )	$V_R \oplus I_R^2$		$V_{BO} \text{ max} \oplus I_{BO}$		$I_H \text{ min}$ (mA)	C typ $\oplus V_R = 2V$ (pF)	Package
				(V)	( $\mu\text{A}$ )	(V)	(mA)			
				SMP30-62	30	56	2			
SMP30-68	30	61	2	68	5	90	800	150	40	SMA
SMP30-100	30	90	2	100	5	133	800	150	35	SMA
SMP30-120	30	108	2	120	5	160	800	150	30	SMA
SMP30-130	30	117	2	130	5	173	800	150	30	SMA
SMP30-180	30	162	2	180	5	240	800	150	25	SMA
SMP30-200	30	180	2	200	5	267	800	150	25	SMA
SMP30-220	30	198	2	220	5	293	800	150	20	SMA
SMP30-240	30	216	2	240	5	320	800	150	20	SMA
SMP30-270	30	243	2	270	5	360	800	150	20	SMA

### Surge suppressors for telecom terminals in SMA (50A)

Compliant with ITU-T K20/21

Part number	$I_{PP} \text{ max}^1$ (A)	$V_{RM}$ (V)	$I_{RM} \text{ max}$ $\oplus V_{RM}$ ( $\mu\text{A}$ )	$V_R \oplus I_R^2$		$V_{BO} \text{ max} \oplus I_{BO}$		$I_H \text{ min}$ (mA)	C typ $\oplus V_R = 2V$ (pF)	Package
				(V)	( $\mu\text{A}$ )	(V)	(mA)			
				SMP50-62	50	56	2			
SMP50-68	50	61	2	68	5	90	800	150	40	SMA
SMP50-100	50	90	2	100	5	133	800	150	35	SMA
SMP50-120	50	108	2	120	5	160	800	150	30	SMA
SMP50-130	50	117	2	130	5	173	800	150	30	SMA
SMP50-180	50	162	2	180	5	240	800	150	25	SMA
SMP50-200	50	180	2	200	5	267	800	150	25	SMA
SMP50-220	50	198	2	220	5	293	800	150	25	SMA
SMP50-240	50	216	2	240	5	320	800	150	25	SMA
SMP50-270	50	243	2	270	5	360	800	150	25	SMA
SMP50-320	50	290	2	320	5	400	800	150	25	SMB

### Surge suppressors for telecom terminals in SMB (50A)

Part number	$I_{PP} \text{ max}^1$ (A)	$V_{RM}$ (V)	$I_{RM} \text{ max}$ $\oplus V_{RM}$ ( $\mu\text{A}$ )	$V_R \oplus I_R^2$		$V_{BO} \text{ max} \oplus I_{BO}$		$I_H \text{ min}$ (mA)	C typ $\oplus V_R = 2V$ (pF)	Package
				(V)	( $\mu\text{A}$ )	(V)	(mA)			
				SMTPA62	50	56	2			
SMTPA68	50	61	2	68	5	90	800	150	40	SMB
SMTPA100	50	90	2	100	5	133	800	150	35	SMB
SMTPA120	50	108	2	120	5	160	800	150	30	SMB
SMTPA130	50	117	2	130	5	173	800	150	30	SMB
SMTPA180	50	162	2	180	5	240	800	150	25	SMB
SMTPA200	50	180	2	200	5	267	800	150	25	SMB
SMTPA220	50	198	2	220	5	293	800	150	25	SMB
SMTPA240	50	216	2	240	5	320	800	150	25	SMB
SMTPA270	50	243	2	270	5	360	800	150	25	SMB
SMTPA320	50	290	2	320	5	400	800	150	25	SMB

### Surge suppressors for telecom terminals in Axial (50A)

Part number	$I_{PP} \text{ max}^1$ (A)	$V_{RM}$ (V)	$I_{RM} \text{ max}$ $\oplus V_{RM}$ ( $\mu\text{A}$ )	$V_R \oplus I_R^2$		$V_{BO} \text{ max} \oplus I_{BO}$		$I_H \text{ min}$ (mA)	C typ $\oplus V_R = 2V$ (pF)	Package
				(V)	( $\mu\text{A}$ )	(V)	(mA)			
				TPA62	50	56	2			
TPA100	50	90	2	100	5	133	800	150	40	DO-15
TPA120	50	108	2	120	5	160	800	150	35	DO-15
TPA130	50	117	2	130	5	173	800	150	30	DO-15
TPA180	50	162	2	180	5	240	800	150	30	DO-15

Transient voltage suppressor – TVS crowbar diodes

Surge suppressors for telecom terminals in Axial (50A)

Continued

Part number	I <sub>pp</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> @ I <sub>R</sub> <sup>2</sup>		V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	C typ @ V <sub>R</sub> = 2V (pF)	Package
				(V)	(μA)	(V)	(mA)			
TPA200	50	180	2	200	5	267	800	150	25	DO-15
TPA220	50	198	2	220	5	293	800	150	25	DO-15
TPA240	50	216	2	240	5	320	800	150	25	DO-15
TPA270	50	243	2	270	5	360	800	150	25	DO-15

Surge suppressors for telecom dataline in SMB (75A)

Part number	I <sub>pp</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> @ I <sub>R</sub> <sup>2</sup>		V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	C typ @ V <sub>R</sub> = 2V (pF)	Package
				(V)	(μA)	(V)	(mA)			
SMP75-8	75	6	2	8	5	15	800	50 (typ)	75	SMB

Surge suppressors for telecom terminals in SMB (80A)

Part number	I <sub>pp</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> @ I <sub>R</sub> <sup>2</sup>		V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	C typ @ V <sub>R</sub> = 2V (pF)	Package
				(V)	(μA)	(V)	(mA)			
SMP80MC-120	80	108	2	120	5	155	800	150	25	SMB
SMP80MC-140	80	126	2	140	5	180	800	150	25	SMB
SMP80MC-160	80	144	2	160	5	205	800	150	25	SMB
SMP80MC-200	80	180	2	200	5	255	800	150	25	SMB
SMP80MC-230	80	207	2	230	5	295	800	150	25	SMB
SMP80MC-270	80	243	2	270	5	345	800	150	25	SMB
SMP80MC-320	80	290	2	320	5	400	800	150	25	SMB

Surge suppressors for telecom equipment in SMB (80A)

Part number	I <sub>pp</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> @ I <sub>R</sub> <sup>2</sup>		V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	C typ @ V <sub>R</sub> = 2V (pF)	Package
				(V)	(μA)	(V)	(mA)			
SMP100MC-140	100	126	2	140	5	180	800	150	60	SMB
SMP100MC-160	100	144	2	160	5	205	800	150	50	SMB
SMP100MC-200	100	180	2	200	5	255	800	150	45	SMB
SMP100MC-230	100	207	2	230	5	295	800	150	40	SMB
SMP100MC-270	100	243	2	270	5	345	800	150	40	SMB
SMP100MC-320	100	290	2	320	5	400	800	150	35	SMB
SMP100MC-360	100	325	2	360	5	460	800	150	35	SMB
SMP100MC-400	100	360	2	400	5	540	800	150	30	SMB
SMP100LC-8	100	6	2	8	5	25	800	50(typ)	75	SMB
SMP100LC-25	100	22	2	25	5	40	800	150	65	SMB
SMP100LC-35	100	32	2	35	5	55	800	150	55	SMB
SMP100LC-65	100	55	2	65	5	85	800	150	90	SMB
SMP100LC-90	100	81	2	90	5	125	800	150	80	SMB
SMP100LC-120	100	108	2	120	5	160	800	150	75	SMB
SMP100LC-140	100	126	2	140	5	190	800	150	65	SMB
SMP100LC-160	100	144	2	160	5	205	800	150	65	SMB
SMP100LC-200	100	180	2	200	5	255	800	150	60	SMB
SMP100LC-230	100	207	2	230	5	295	800	150	60	SMB
SMP100LC-270	100	243	2	270	5	345	800	150	60	SMB
SMP100LC-320	100	290	2	320	5	400	800	150	50	SMB
SMP100LC-360	100	325	2	360	5	460	800	150	50	SMB
SMP100LC-400	100	360	2	400	5	540	800	150	45	SMB

1: 10/1000μs waveform

2: I<sub>R</sub> measured at V<sub>R</sub> guarantee V<sub>BR</sub> min ≥ V<sub>R</sub>

■ : New products

## Transient voltage suppressor – TVS crowbar ICs

### Fixed voltage protection for telecom relay

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> min @ I <sub>R</sub>		V <sub>B0</sub> max @ I <sub>B0</sub>		I <sub>H</sub> min (mA)	Package
				(V)	(μA)	(V)	(mA)		
THBT15011D	30	135	5	150	50	210	400	150	S0-8
THBT16011D	30	135	5	160	50	230	400	150	S0-8
THBT20011D	30	180	5	200	50	290	400	150	S0-8
THBT27011D	30	240	5	270	50	380	400	150	S0-8
TLP140G	100	120	5	140	50	200	500	150	D <sup>2</sup> PAK
TLP140G-1	100	120	5	140	50	200	500	150	I <sup>2</sup> PAK
TLP200G	100	180	5	200	50	290	500	150	D <sup>2</sup> PAK
TLP200G-1	100	180	5	200	50	290	500	150	I <sup>2</sup> PAK
TLP270G	100	230	5	270	50	400	500	150	D <sup>2</sup> PAK
TLP270G-1	100	230	5	270	50	400	500	150	I <sup>2</sup> PAK

### Fixed voltage protection for telecom solid state relay

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>R</sub> min @ I <sub>R</sub>		V <sub>B0</sub> max (50Hz) (V)	I <sub>H</sub> min (mA)	Package
		(V)	(μA)			
SSRP105B1	2 x 35	+105 / -180	10	+ 165 / -225	150 (neg polarity)/ 100 (pos polarity)	S0-8
SSRP130B1	2 x 15	+130 / -185	10	+ 200 / -280	150	S0-8

### Fixed voltage protection for SLC

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> min @ I <sub>R</sub>		V <sub>B0</sub> max (V)	I <sub>H</sub> min (mA)	Package
				(V)	(μA)			
THDT6511D	40	63	100	65	1	85	150	S0-8

### Programmable voltage protection for SLC

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	Max operating voltage (V)	V <sub>DGL</sub> max [10/700μs] (V)	I <sub>H</sub> min (mA)	Package
LCDP1521	2x15	150	5	150	5	150	S0-8
LCPO2-150B1	30	-105 / 90	5	-110 to +95	8	150	S0-8 wide
LCPO2-150M	100	-105 / 90	5	-110 to +95	6 (+suppressor)/ 8 (-suppressor)	150	PowerS0-10
LCP1521S	30	150	5	150	7	150	S0-8
LCP152DEE	30	150	5	150	7	150	QFN 3x3
LCP1531	37.5 <sup>(2)</sup>	150	5	150	7	150	S0-8
LCP3121	100	60	5	80		100	S0-8

### Programmable current and voltage protection for line card

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>LG</sub> (V)	I <sub>LGL</sub> max @ V <sub>LG</sub> (μA)	V <sub>REF</sub> min @ I <sub>LGL</sub>		V <sub>SWON</sub> max @ I <sub>SWOFF</sub> min		Package
				(V)	(mA)	(V)	(mA)	
CLP30-200B1	30	200	10			290	150	S0-8
CLP200M	100	200	10	215	1	290	150	PowerS0-10
CLP270M	100	240	10	270	1	380	150	PowerS0-10

## Transient voltage suppressor – TVS crowbar ICs

### Secondary protection for DSL lines

Part number	I <sub>PP</sub> max <sup>3</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BR</sub> min @ I <sub>BR</sub>		V <sub>BO</sub> max (V)	I <sub>H</sub> typ (mA)	ΔC typ <sup>4</sup> (pF)	Package
				(V)	(mA)				
DSL01-008SC5	30	8	0.5	9.5	1	20	100	3.5	SOT23-5L
DSL01-012SC6 <sup>5</sup>	30	12	0.5	14	1	30	100	3.5	SOT23-5L
DSL01-016SC5	30	16	0.5	18	1	40	100	3.5	SOT23-5L
DSL01-024SC5 <sup>5</sup>	30	24	0.5	28	1	50	100	3.5	SOT23-5L

### Protection for ISDN S and U interface

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>R</sub> min @ I <sub>R</sub>		V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	Package
				(V)	(mA)	(V)	(mA)		
TPI8011N	30	70	10	80	1	120	800	150	S0-8
TPI12011N	30	105	10	120	1	180	800	150	S0-8

### Protection for T1/E1 interface

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	Package
				(V)	(mA)		
TPN3021	30	28	4	38	300	30	S0-8

### Protection for ethernet

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	Package
				(V)	(mA)		
ETP01-1621 <sup>5</sup>	37.5 <sup>2</sup>	16	1	tbd	tbd	30	S0-8
ETP01-2821 <sup>5</sup>	37.5 <sup>2</sup>	28	1	tbd	tbd	30	S0-8

### Bridge and protection “all-in-one” for telecom terminals

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	Package
				(V)	(mA)		
TSI200B1	30	200	5	290	400	150	S0-8
TSI220B1	30	220	5	330	400	150	S0-8

### Overvoltage and overcurrent protection for telecom line

Part number	I <sub>PP</sub> max <sup>1</sup> (A)	V <sub>RM</sub> (V)	I <sub>RM</sub> max @ V <sub>RM</sub> (μA)	V <sub>BO</sub> max @ I <sub>BO</sub>		I <sub>H</sub> min (mA)	Package
				(V)	(mA)		
TPP25011	30	60	6	340	200	180	S0-8

- 1: 10/1000μs waveform
- 2: 5/310μs waveform
- 3: 8/20μs waveform
- 4: Measured between 1V and V<sub>RM</sub>
- 5: Under development



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