



NXP 600 and 400 W TVS diodes in SOD128 and SOD123W

FlatPower TVS: Smallest packages in 600/400 W surge-protection class

Housed in very flat SOD128 or SOD123W packages, these transient voltage suppressor (TVS) diodes save board space while guaranteeing industry-leading surge protection up to 600 W.

Key features

- ▶ Power rating: 600 W / 400 W peak pulse
- ▶ 70 devices with voltage range from 3.3 - 64 V
- ▶ Very high surge/PCB area ratio
- ▶ Very low reverse leakage current (down to 1 μ A typical)
- ▶ Dark Green packages free of halogens and antimony oxides

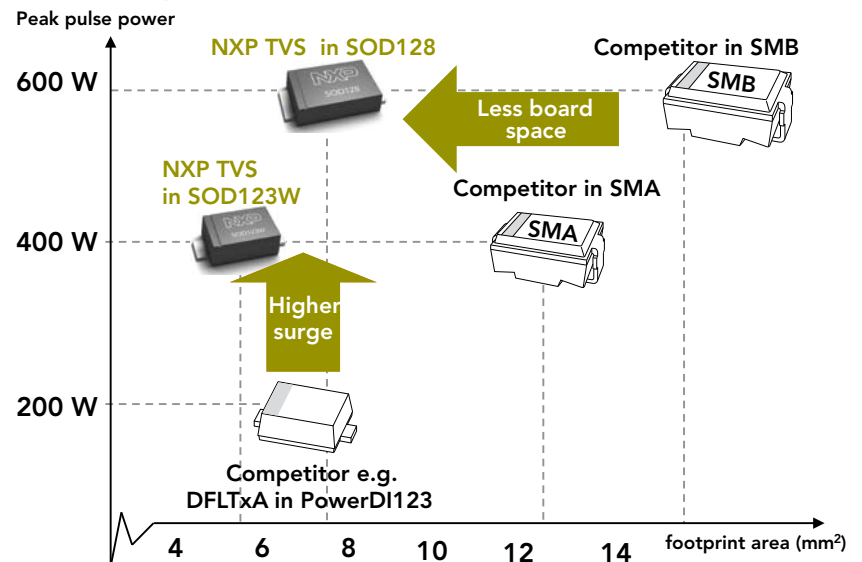
Key benefits

- ▶ Highest values for surge capability due to clip-bond technology
- ▶ Low profile for economic use of space
- ▶ Excellent clamping performance
- ▶ AEC-Q101 qualified
- ▶ Pad layout compatible with SMA and SMB for easy drop-in replacement
- ▶ Minimized outline and reflow soldering footprint

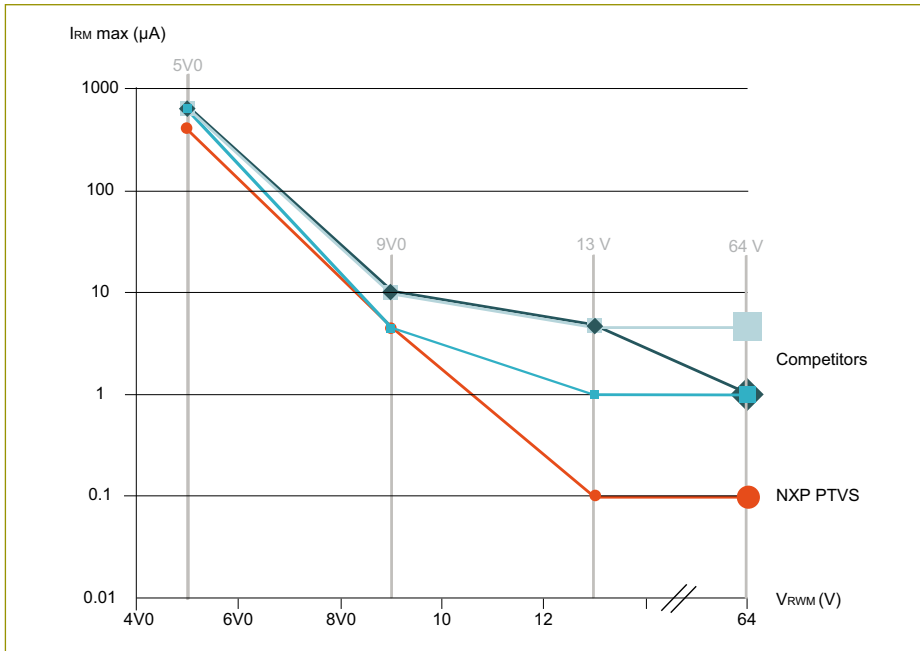
Key applications

- ▶ Power supplies / Power management
- ▶ Automotive and industrial applications
- ▶ Telecommunication circuits

Market comparison



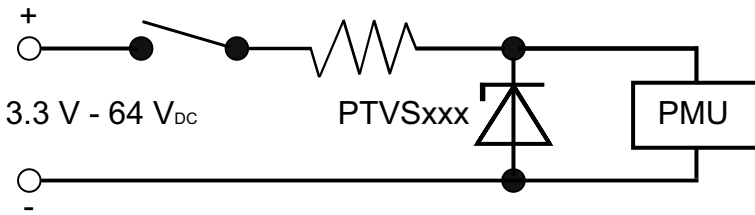
Reduced energy consumption with market's lowest maximum leakage current



Sample applications

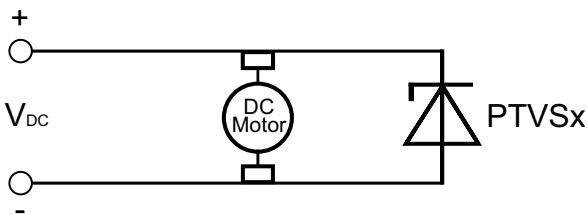
Communication

Charger line protection



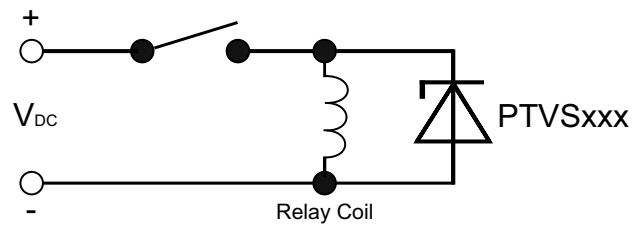
Industrial

DC motor EMI limiting



Automotive

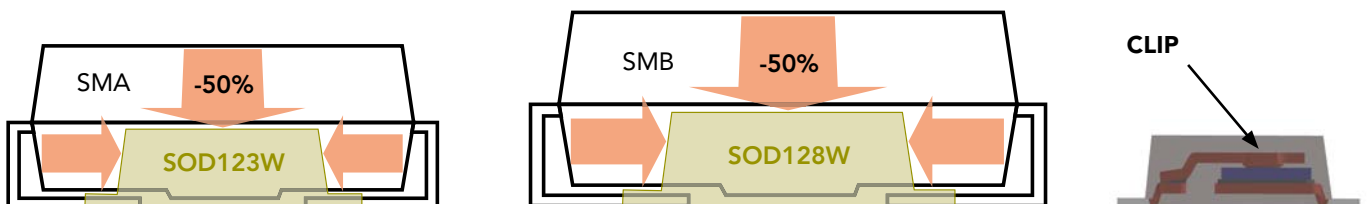
Fuel-injector transient limiting




Save space while retaining performance

Clip-bond technology enables

- ▶ Full electrical performance compared to SMA and SMB with a significantly smaller footprint
- ▶ 50 % reduced height
- ▶ 50 % reduced board space

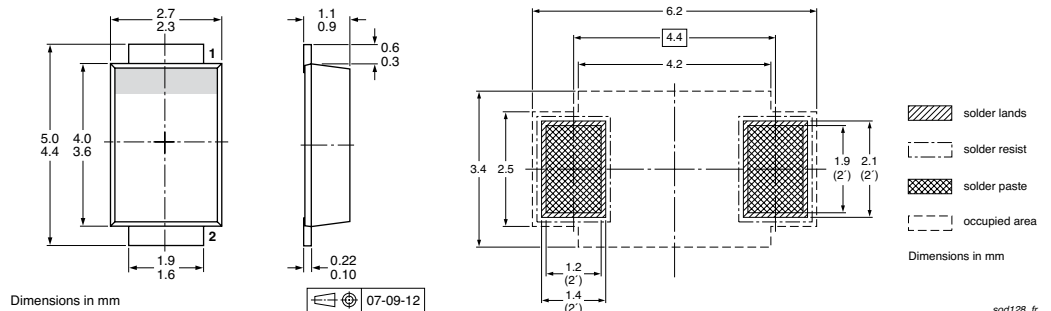


TVS diodes, 600 W

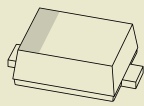
Power (W) (10/1000 μ s waveform) ⁽¹⁾	V_{revmin} (V)	$V_{\text{BR min}}$ (V) @ I_{r}	$V_{\text{BR typ}}$ (V) @ I_{r}	$V_{\text{BR max}}$ (V) @ I_{r}	I_{r} (mA)	$V_{\text{CL max}}$ (V) @ I_{pp}	I_{pp} (A)	$I_{\text{RM typ}}$ (μ A) @ V_{revmin}	$I_{\text{RM max}}$ (μ A) @ V_{revmin}	Type	Package
3.5	5.20	5.60	6.00	10	8	75	5	600	PTVS3V3P1UP	SOD128  3.8 x 2.6 x 1.0	
5	6.40	6.70	7.00	10	9.2	65.2	5	400	PTVS5V0P1UP		
6	6.67	7.02	7.37	10	10.3	58.3	5	400	PTVS6V0P1UP		
6.5	7.22	7.60	7.98	10	11.2	53.6	5	250	PTVS6V5P1UP		
7	7.78	8.20	8.60	10	12	50	3	100	PTVS7V0P1UP		
7.5	8.33	8.77	9.21	1	12.9	46.5	0.2	50	PTVS7V5P1UP		
8	8.89	9.36	9.83	1	13.6	44.1	0.03	25	PTVS8V0P1UP		
8.5	9.44	9.92	10.40	1	14.4	41.7	0.01	10	PTVS8V5P1UP		
9	10.00	10.55	11.10	1	15.4	39	0.005	5	PTVS9V0P1UP		
10	11.10	11.70	12.30	1	17	35.3	0.005	2.5	PTVS10VP1UP		
11	12.20	12.85	13.50	1	18.2	33	0.005	2.5	PTVS11VP1UP		
12	13.30	14.00	14.70	1	19.9	30.2	0.005	2.5	PTVS12VP1UP		
13	14.40	15.15	15.90	1	21.5	27.9	0.001	0.1	PTVS13VP1UP		
14	15.60	16.40	17.20	1	23.2	25.9	0.001	0.1	PTVS14VP1UP		
15	16.70	17.60	18.50	1	24.4	24.6	0.001	0.1	PTVS15VP1UP		
16	17.80	18.75	19.70	1	26	23.1	0.001	0.1	PTVS16VP1UP		
17	18.90	19.90	20.90	1	27.6	21.7	0.001	0.1	PTVS17VP1UP		
18	20.00	21.00	22.10	1	29.2	20.5	0.001	0.1	PTVS18VP1UP		
20	22.20	23.35	24.50	1	32.4	18.5	0.001	0.1	PTVS20VP1UP		
22	24.40	25.60	26.90	1	35.5	16.9	0.001	0.1	PTVS22VP1UP		
24	26.70	28.10	29.50	1	38.9	15.4	0.001	0.1	PTVS24VP1UP		
26	28.90	30.40	31.90	1	42.1	14.2	0.001	0.1	PTVS26VP1UP		
28	31.10	32.80	34.40	1	45.4	13.2	0.001	0.1	PTVS28VP1UP		
30	33.30	35.10	36.80	1	48.4	12.4	0.001	0.1	PTVS30VP1UP		
33	36.70	38.70	40.60	1	53.3	11.3	0.001	0.1	PTVS33VP1UP		
36	40.00	42.10	44.20	1	58.1	10.3	0.001	0.1	PTVS36VP1UP		
40	44.40	46.80	49.10	1	64.5	9.3	0.001	0.1	PTVS40VP1UP		
43	47.80	50.30	52.80	1	69.4	8.6	0.001	0.1	PTVS43VP1UP		
45	50.00	52.65	55.30	1	72.7	8.3	0.001	0.1	PTVS45VP1UP		
48	53.30	56.10	58.90	1	77.4	7.8	0.001	0.1	PTVS48VP1UP		
51	56.70	59.70	62.70	1	82.4	7.3	0.001	0.1	PTVS51VP1UP		
54	60.00	63.15	66.30	1	87.1	6.9	0.001	0.1	PTVS54VP1UP		
58	64.40	67.80	71.20	1	93.6	6.4	0.001	0.1	PTVS58VP1UP		
60	66.70	70.20	73.70	1	96.8	6.2	0.001	0.1	PTVS60VP1UP		
64	71.10	74.85	78.60	1	103	5.8	0.001	0.1	PTVS64VP1UP		

⁽¹⁾ 10/1000 μ s acc. to IEC 61643-321

FlatPower package SOD128



TVS diodes, 400 W

Power (W) (10/1000 μ s waveform) ⁽¹⁾	$V_{\text{rwm}} (V)$	$V_{\text{BR min}} (V) @ I_{\text{r}}$	$V_{\text{BR typ}} (V) @ I_{\text{r}}$	$V_{\text{BR max}} (V) @ I_{\text{r}}$	$I_{\text{r}} (mA)$	$V_{\text{CL max}} (V) @ I_{\text{pp}}$	$I_{\text{pp}} (A)$	$I_{\text{RM typ}} (\mu A) @ V_{\text{rwm}}$	$I_{\text{RM max}} (\mu A) @ V_{\text{rwm}}$	Type	Package
350	3.5	5.20	5.60	6.00	10	8.0	43.8	5	600	PTVS3V3S1UR	 <p>SOD123W</p> <p>2.6 x 1.7 x 1.0</p>
400	5.0	6.40	6.70	7.00	10	9.2	43.5	5	400	PTVS5V0S1UR	
	6.0	6.67	7.02	7.37	10	10.3	38.8	5	400	PTVS6V0S1UR	
	6.5	7.22	7.60	7.98	10	11.2	35.7	5	250	PTVS6V5S1UR	
	7.0	7.78	8.20	8.60	10	12.0	33.3	3	100	PTVS7V0S1UR	
	7.5	8.33	8.77	9.21	1	12.9	31.0	0.2	50	PTVS7V5S1UR	
	8.0	8.89	9.36	9.83	1	13.6	29.4	0.03	25	PTVS8V0S1UR	
	8.5	9.44	9.92	10.40	1	14.4	27.8	0.01	10	PTVS8V5S1UR	
	9.0	10.00	10.55	11.10	1	15.4	26.0	0.005	5	PTVS9V0S1UR	
	10	11.10	11.70	12.30	1	17.0	23.5	0.005	2.5	PTVS10V1UR	
	11	12.20	12.85	13.50	1	18.2	22.0	0.005	2.5	PTVS11V1UR	
	12	13.30	14.00	14.70	1	19.9	20.1	0.005	2.5	PTVS12V1UR	
	13	14.40	15.15	15.90	1	21.5	18.6	0.001	0.1	PTVS13V1UR	
	14	15.60	16.40	17.20	1	23.2	17.2	0.001	0.1	PTVS14V1UR	
	15	16.70	17.60	18.50	1	24.4	16.4	0.001	0.1	PTVS15V1UR	
	16	17.80	18.75	19.70	1	26.0	15.4	0.001	0.1	PTVS16V1UR	
	17	18.90	19.90	20.90	1	27.6	14.5	0.001	0.1	PTVS17V1UR	
	18	20.00	21.00	22.10	1	29.2	13.7	0.001	0.1	PTVS18V1UR	
	20	22.20	23.35	24.50	1	32.4	12.3	0.001	0.1	PTVS20V1UR	
	22	24.40	25.60	26.90	1	35.5	11.3	0.001	0.1	PTVS22V1UR	
	24	26.70	28.10	29.50	1	38.9	10.3	0.001	0.1	PTVS24V1UR	
	26	28.90	30.40	31.90	1	42.1	9.5	0.001	0.1	PTVS26V1UR	
	28	31.10	32.80	34.40	1	45.4	8.8	0.001	0.1	PTVS28V1UR	
	30	33.30	35.10	36.80	1	48.4	8.3	0.001	0.1	PTVS30V1UR	
	33	36.70	38.70	40.60	1	53.3	7.5	0.001	0.1	PTVS33V1UR	
	36	40.00	42.10	44.20	1	58.1	6.9	0.001	0.1	PTVS36V1UR	
	40	44.40	46.80	49.10	1	64.5	6.2	0.001	0.1	PTVS40V1UR	
	43	47.80	50.30	52.80	1	69.4	5.8	0.001	0.1	PTVS43V1UR	
	45	50.00	52.65	55.30	1	72.7	5.5	0.001	0.1	PTVS45V1UR	
	48	53.30	56.10	58.90	1	77.4	5.2	0.001	0.1	PTVS48V1UR	
	51	56.70	59.70	62.70	1	82.4	4.9	0.001	0.1	PTVS51V1UR	
54	60.00	63.15	66.30	1	87.1	4.6	0.001	0.1	PTVS54V1UR		
58	64.40	67.80	71.20	1	93.6	4.3	0.001	0.1	PTVS58V1UR		
60	66.70	70.20	73.70	1	96.8	4.1	0.001	0.1	PTVS60V1UR		
64	71.10	74.85	78.60	1	103.0	3.9	0.001	0.1	PTVS64V1UR		

⁽¹⁾ 10/1000 μ s acc. to IEC 61643-321

FlatPower package SOD123W

