

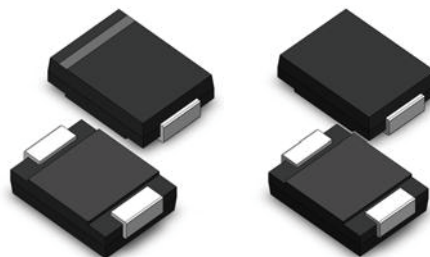
WHTUxxxxA/WHTBxxxxA

Product Datasheet

1500W Transient Voltage Suppressor

1.Description

WHTU/TB series, 1500W transient voltage suppressor (TVS) in DO-214AB package, designed to protect electronic circuit which induced by lightning surge or other transient voltage situation.



2.Features

- High reliability application and automotive grade AEC-Q101 qualified
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Meets MSL level 1, per J-STD-020
- 1500W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1 μ A above 10V
- Plastic package has underwriters laboratory flammability 94V-0
- High Temperature soldering: 260 $^{\circ}$ C/10 seconds at terminals

3.Mechanical Data

- Case: JEDEC DO-214AB. Molded plastic over glass passivated junction
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Standard Packaging: 12mm tape
- Weight: 0.25g

4.Maximum Ratings and Characteristics

Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000us waveform	P _{PPM}	Minimum 1500	W
Peak pulse current of at 10/1000us waveform	I _{PPM}	See Table	A
Steady state power dissipation at TA=50 $^{\circ}$ C	P _{M(AV)}	6.5	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I _{FSM}	200	A
Operating junction and Storage Temperature Range	T _J , T _{STG}	-65 to 150	$^{\circ}$ C
Typical thermal resistance junction to lead	R _{θJL}	15	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	R _{θJA}	75	$^{\circ}$ C/W

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Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25℃ per Fig.2.
2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.
3. Mounted on 8.0mm×8.0mm copper pads to each terminal.

5.Electrical Characteristics (TA=25℃)

Part Number	Part Number	Marking		Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	ROHS2.0
UNI	BI	UNI	BI		MIN	MAX	(mA)	(V)			
WHTU05V0A	WHTB05V0A	GDE	BDE	5	6.4	7	10	9.2	163	400	y
WHTU06V0A	WHTB06V0A	GDG	BDG	6	6.67	7.37	10	10.3	145.7	400	y
WHTU06V5A	WHTB06V5A	GDK	BDK	6.5	7.22	7.98	10	11.2	134	250	y
WHTU07V0A	WHTB07V0A	GDM	BDM	7	7.78	8.6	10	12	125	100	y
WHTU07V5A	WHTB07V5A	GDP	BDP	7.5	8.33	9.21	1	12.9	116.3	80	y
WHTU08V0A	WHTB08V0A	GDR	BDR	8	8.89	9.83	1	13.6	110.3	50	y
WHTU08V5A	WHTB08V5A	GDT	BDT	8.5	9.44	10.4	1	14.4	104.2	20	y
WHTU09V0A	WHTB09V0A	GDV	BDV	9	10	11.1	1	15.4	97.4	10	y
WHTU10V0A	WHTB10V0A	GDX	BDX	10	11	12.3	1	17	88.3	5	y
WHTU11V0A	WHTB11V0A	GDZ	BDZ	11	12.2	13.5	1	18.2	82.5	1	y
WHTU12V0A	WHTB12V0A	GEE	BEE	12	13.3	14.7	1	19.9	75.4	1	y
WHTU13V0A	WHTB13V0A	GEG	BEG	13	14.4	15.9	1	21.5	69.8	1	y
WHTU14V0A	WHTB14V0A	GEK	BEK	14	15.6	17.2	1	23.2	64.7	1	y
WHTU15V0A	WHTB15V0A	GEM	BEM	15	16.7	18.5	1	24.4	61.5	1	y
WHTU16V0A	WHTB16V0A	GEP	BEP	16	17.8	19.7	1	26	57.7	1	y
WHTU17V0A	WHTB17V0A	GER	BER	17	18.9	20.9	1	27.6	54.4	1	y
WHTU18V0A	WHTB18V0A	GET	BET	18	20	22.1	1	29.2	51.4	1	y
WHTU20V0A	WHTB20V0A	GEV	BEV	20	22.2	24.5	1	32.4	46.3	1	y
WHTU22V0A	WHTB22V0A	GEX	BEX	22	24.4	26.9	1	35.5	42.3	1	y
WHTU24V0A	WHTB24V0A	GEZ	BEZ	24	26.7	29.5	1	38.9	38.6	1	y
WHTU26V0A	WHTB26V0A	GFE	BFE	26	28.9	31.9	1	42.1	35.7	1	y
WHTU28V0A	WHTB28V0A	GFG	BFG	28	31.1	34.4	1	45.4	33.1	1	y
WHTU30V0A	WHTB30V0A	GFK	BFK	30	33.3	36.8	1	48.4	31	1	y
WHTU33V0A	WHTB33V0A	GFM	BFM	33	36.7	40.6	1	53.3	28.2	1	y
WHTU36V0A	WHTB36V0A	GFP	BFP	36	40	44.2	1	58.1	25.9	1	y
WHTU40V0A	WHTB40V0A	GFR	BFR	40	44.4	49.1	1	64.5	23.3	1	y
WHTU43V0A	WHTB43V0A	GFT	BFT	43	47.8	52.8	1	69.4	21.7	1	y

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Part Number	Part Number	Marking		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μA)	ROHS2.0
UNI	BI	UNI	BI		MIN	MAX	(mA)	(V)			
WHTU45V0A	WHTB45V0A	GFV	BFV	45	50	55.3	1	72.7	20.6	1	y
WHTU48V0A	WHTB48V0A	GFX	BFX	48	53.3	58.9	1	77.4	19.4	1	y
WHTU51V0A	WHTB51V0A	GFZ	BFZ	51	56.7	62.7	1	82.4	18.2	1	y
WHTU54V0A	WHTB54V0A	GGE	BGE	54	60	66.3	1	87.1	17.3	1	y
WHTU58V0A	WHTB58V0A	GGG	BGG	58	64.4	71.2	1	93.6	16.1	1	y
WHTU60V0A	WHTB60V0A	GGK	BGK	60	66.7	73.7	1	96.8	15.5	1	y
WHTU64V0A	WHTB64V0A	GGM	BGM	64	71.1	78.6	1	103	14.6	1	y
WHTU70V0A	WHTB70V0A	GGP	BGP	70	77.8	86	1	113	13.3	1	y
WHTU75V0A	WHTB75V0A	GGR	BGR	75	83.3	92.1	1	121	12.4	1	y
WHTU78V0A	WHTB78V0A	GGT	BGT	78	86.7	95.8	1	126	11.9	1	y
WHTU85V0A	WHTB85V0A	GGV	BGV	85	94.4	104	1	137	11	1	y
WHTU90V0A	WHTB90V0A	GGX	BGX	90	100	111	1	146	10.3	1	y
WHTU100VA	WHTB100VA	GGZ	BGZ	100	111	123	1	162	9.3	1	y
WHTU110VA	WHTB110VA	GHE	BHE	110	122	135	1	177	8.5	1	y
WHTU120VA	WHTB120VA	GHG	BHG	120	133	147	1	193	7.8	1	y
WHTU130VA	WHTB130VA	GHK	BHK	130	144	159	1	209	7.2	1	y
WHTU150VA	WHTB150VA	GHM	BHM	150	167	185	1	243	6.2	1	y
WHTU160VA	WHTB160VA	GHP	BHP	160	178	197	1	259	5.8	1	y
WHTU170VA	WHTB170VA	GHR	BHR	170	189	209	1	275	5.5	1	y
WHTU180VA	WHTB180VA	GHT	BHT	180	201	222	1	292	5.1	1	y
WHTU200VA	WHTB200VA	GHV	BHV	200	224	247	1	324	4.6	1	y
WHTU220VA	WHTB220VA	GHX	BHX	220	246	272	1	356	4.2	1	y
WHTU250VA	WHTB250VA	GHZ	BHZ	250	279	309	1	405	3.7	1	y
WHTU300VA	WHTB300VA	GJE	BJE	300	335	371	1	486	3.1	1	y
WHTU350VA	WHTB350VA	GJG	BJG	350	391	432	1	567	2.6	1	y
WHTU400VA	WHTB400VA	GJK	BJK	400	447	494	1	648	2.3	1	y
WHTU440VA	WHTB440VA	GJM	BJM	440	492	543	1	713	2.1	1	y

For bidirectional type having V_R of 10 volts and less, the I_R limit is double.

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6.Ratings and Characteristic Curves (TA =25℃ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

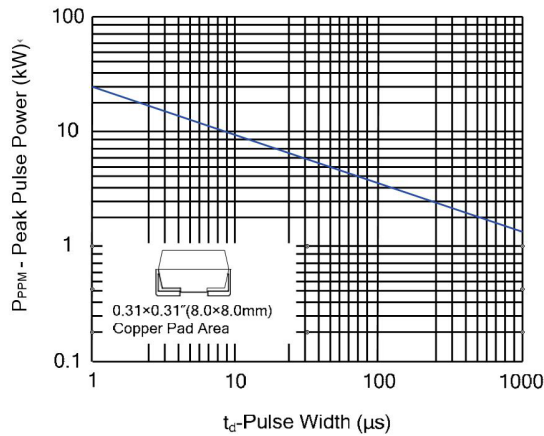


Figure 2 Pulse Derating Curve

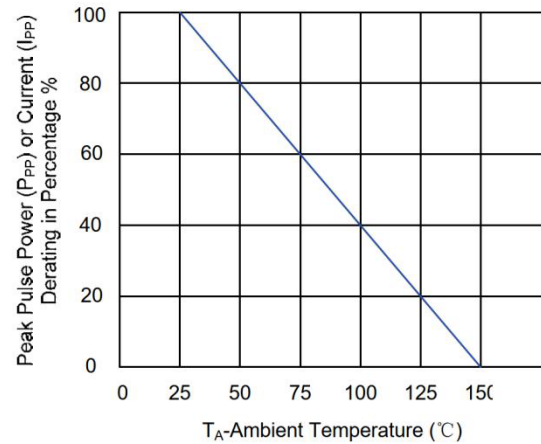


Figure 3 Pulse Waveform

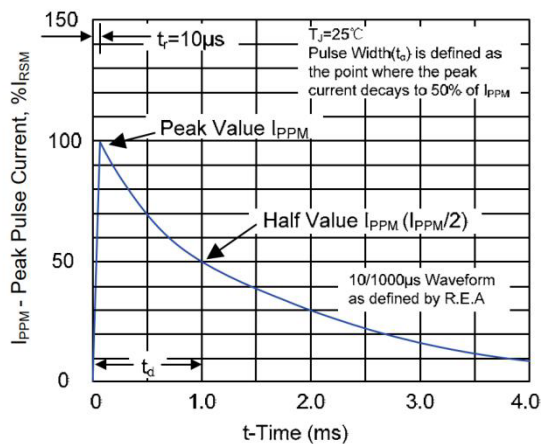


Figure 4 Typical Junction Capacitance

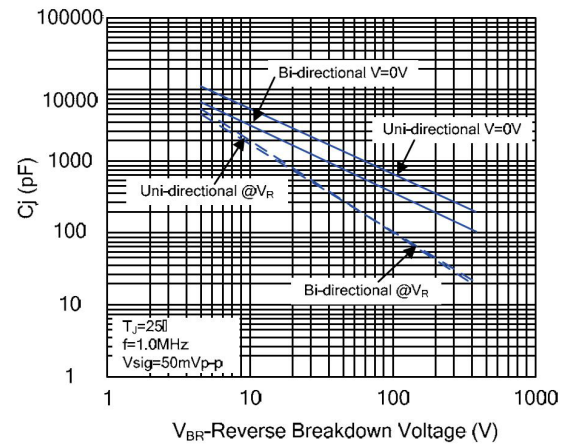


Figure 5 Steady State Power Dissipation Derating Curve

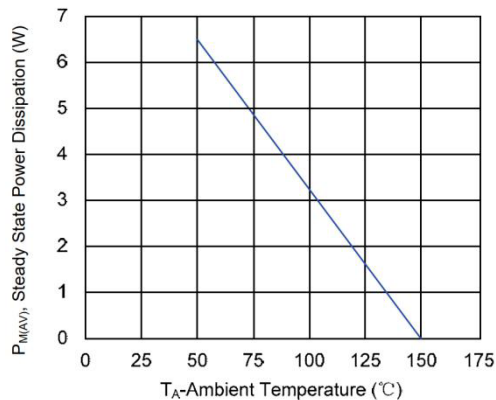
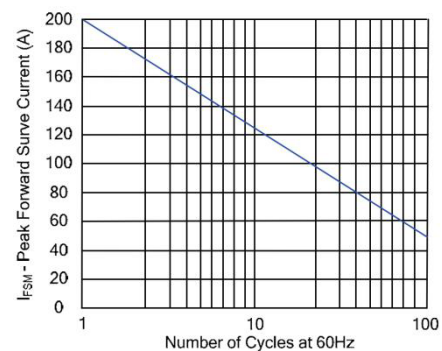


Figure 6 Maximum Non-Repetitive Forward Surge Current
Uni-Directional Only

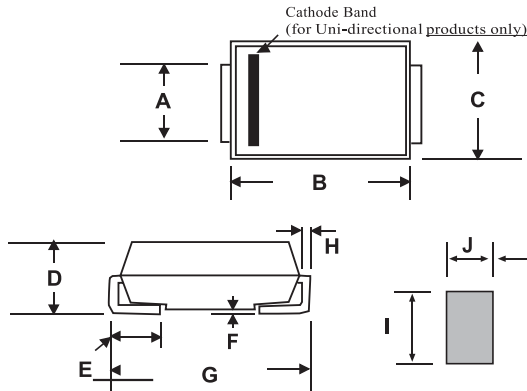


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7.Dimension (SMC/DO-214AB)



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.11	0.126	2.8	3.2
B	0.26	0.28	6.6	7.11
C	0.22	0.245	5.59	6.22
D	0.079	0.111	2.06	2.83
E	0.03	0.063	0.76	1.6
F	-	0.012	-	0.3
G	0.301	0.321	7.65	8.15
H	0.006	0.012	0.152	0.305
I	0.129	-	3.3	-
J	0.094	-	2.4	-
K	-	0.165	-	4.2
L	0.094	-	2.4	-

8. Packaging

Tape		Symbol	Dimension (mm)
		W	16.00±0.20
		P0	4.00±0.10
		P1	8.00±0.10
		P2	2.00±0.10
		D0	Φ1.5±0.10
		D1	Φ1.5±0.10
		E	1.75±0.10
		F	7.50±0.10
		A0	6.27±0.10
		B0	8.30±0.10
		K0	3.15±0.15
		T	0.30±0.05
13" Reel			
		D5	Φ330.0±2.0
		D6	Φ13.5±0.5
		H	2.5±1.0
		W2	20.0±3.0
		Quantity: 3000PCS	