

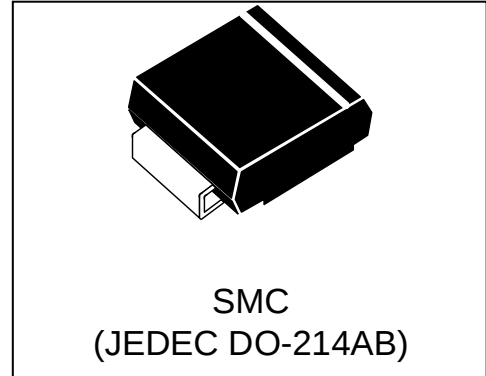


WSxxP30SMC(-B)-AT

Automotive Load Dump Protection TVS

Features

- 3000 watts Peak Pulse Power (10/1000μs)
- Unidirectional and Bidirectional Protection
- Fast Response Time : Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- AEC-Q101 compliant
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- MSL: Level 1



Mechanical Characteristics

- JEDEC DO-214AB package
- Molding compound flammability rating:
UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- Auto power system
- Car audio and video
- Automotive instrument
- Car GPS
- Can-bus

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000μs) (see Note1&2)	P _{PPM}	3000	Watts
Peak pulse current (10/1000μs) (see Note2)	I _{PPM}	See Electrical Characteristics	A
Power Dissipation on infinite heat sink T _L = 50 °C (Fig 4)	P _D	6.5	W
Operating Junction Temperature range	T _J	-65 to + 150	°C
Storage Temperature range	T _{STG}	-65 to + 150	°C

Note1: Peak Pulse Power Rating as Pulse Width ,per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25°C Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

Electrical Characteristics

Part Number		Marking		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage $V_{BR@I_T}$ (Volts)		Test Current I_T (mA)	Maximum Clamping Voltage $V_C@I_{PP}$ (Volts)	Maximum Peak Pulse Current I_{PP} (Amps)	Maximum Reverse Leakage $I_R@V_{RWM}$ (μA)
UNI-POLAR	BI-POLAR	UNI-POLAR	BI-POLAR		MIN	MAX				
WS5.0P30SMC-AT	WS5.0P30SMC-B-AT	DPUY	DPVZ	5.0	6.40	7.00	10	9.2	326.1	800
WS6.0P30SMC-AT	WS6.0P30SMC-B-AT	DQUY	DQVZ	6.0	6.67	7.37	10	10.3	291.3	800
WS6.5P30SMC-AT	WS6.5P30SMC-B-AT	DQUP	DQVP	6.5	7.22	7.98	10	11.2	267.9	500
WS7.0P30SMC-AT	WS7.0P30SMC-B-AT	DRUY	DRVZ	7.0	7.78	8.60	10	12.0	250.0	200
WS7.5P30SMC-AT	WS7.5P30SMC-B-AT	DRUP	DRVP	7.5	8.33	9.21	1	12.9	232.6	100
WS8.0P30SMC-AT	WS8.0P30SMC-B-AT	DSUY	DSVZ	8.0	8.89	9.83	1	13.6	220.6	50
WS8.5P30SMC-AT	WS8.5P30SMC-B-AT	DSUP	DSVP	8.5	9.44	10.40	1	14.4	208.3	20
WS9.0P30SMC-AT	WS9.0P30SMC-B-AT	DTUY	DTVZ	9.0	10.00	11.10	1	15.4	194.8	10
WS10P30SMC-AT	WS10P30SMC-B-AT	DYLY	DZLZ	10.0	11.10	12.30	1	17.0	176.5	5
WS11P30SMC-AT	WS11P30SMC-B-AT	DYLL	DZLL	11.0	12.20	13.50	1	18.2	164.8	2
WS12P30SMC-AT	WS12P30SMC-B-AT	DYLM	DZLM	12.0	13.30	14.70	1	19.9	150.8	2
WS13P30SMC-AT	WS13P30SMC-B-AT	DYLN	DZLN	13.0	14.40	15.90	1	21.5	139.5	2
WS14P30SMC-AT	WS14P30SMC-B-AT	DYLO	DZLO	14.0	15.60	17.20	1	23.2	129.3	2
WS15P30SMC-AT	WS15P30SMC-B-AT	DYLP	DZLP	15	16.70	18.50	1	24.4	123.0	2
WS16P30SMC-AT	WS16P30SMC-B-AT	DYLQ	DZLQ	16	17.80	19.70	1	26.0	115.4	2
WS18P30SMC-AT	WS18P30SMC-B-AT	DYLS	DZLS	18	20.00	22.10	1	29.2	102.7	2
WS20P30SMC-AT	WS20P30SMC-B-AT	DYMY	DZMZ	20	22.20	24.50	1	32.4	92.6	2
WS22P30SMC-AT	WS22P30SMC-B-AT	DYMM	DZMM	22	24.40	26.90	1	35.5	84.5	2
WS24P30SMC-AT	WS24P30SMC-B-AT	DYMO	DZMO	24	26.70	29.50	1	38.9	77.1	2
WS26P30SMC-AT	WS26P30SMC-B-AT	DYMQ	DZMQ	26	28.90	31.90	1	42.1	71.3	2
WS28P30SMC-AT	WS28P30SMC-B-AT	DYMS	DZMS	28	31.10	34.40	1	45.4	66.1	2
WS30P30SMC-AT	WS30P30SMC-B-AT	DYNY	DZNZ	30	33.30	36.80	1	48.4	62.0	2
WS33P30SMC-AT	WS33P30SMC-B-AT	DYNN	DZNN	33	36.70	40.60	1	53.3	56.3	2
WS36P30SMC-AT	WS36P30SMC-B-AT	DYNQ	DZNQ	36	40.00	44.20	1	58.1	51.6	2
WS40P30SMC-AT	WS40P30SMC-B-AT	DYOY	DZOZ	40	44.40	49.10	1	64.5	46.5	2
WS43P30SMC-AT	WS43P30SMC-B-AT	DYON	DZON	43	47.80	52.80	1	69.4	43.2	2
WS45P30SMC-AT	WS45P30SMC-B-AT	DYOP	DZOP	45	50.00	55.30	1	72.7	41.3	2
WS48P30SMC-AT	WS48P30SMC-B-AT	DYOS	DZOS	48	53.30	58.90	1	77.4	38.8	2
WS51P30SMC-AT	WS51P30SMC-B-AT	DYPL	DZPL	51	56.70	62.70	1	82.4	36.4	2

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WS54P30SMC-AT	WS54P30SMC-B-AT	DYPO	DZPO	54	60.00	66.30	1	87.1	34.4	2
WS58P30SMC-AT	WS58P30SMC-B-AT	DYPS	DZPS	58	64.40	71.20	1	93.6	32.1	2
WS60P30SMC-AT	WS60P30SMC-B-AT	DYQY	DZQZ	60	66.70	73.70	1	96.8	31.0	2
WS64P30SMC-AT	WS64P30SMC-B-AT	DYQO	DZQO	64	71.10	78.60	1	103	29.1	2
WS70P30SMC-AT	WS70P30SMC-B-AT	DYRY	DZRZ	70	77.80	86.00	1	113	26.5	2
WS75P30SMC-AT	WS75P30SMC-B-AT	DYRP	DZRP	75	83.30	92.10	1	121	24.8	2
WS78P30SMC-AT	WS78P30SMC-B-AT	DYRS	DZRS	78	86.70	95.80	1	126	23.8	2
WS85P30SMC-AT	WS85P30SMC-B-AT	DYSP	DZSP	85	94.40	104	1	137	21.9	2
WS90P30SMC-AT	WS90P30SMC-B-AT	DYTY	DZTZ	90	100	111	1	146	20.5	2
WS100P30SMC-AT	WS100P30SMC-B-AT	DLYY	DLZZ	100.0	111.00	123.00	1	162.0	18.5	2
WS110P30SMC-AT	WS110P30SMC-B-AT	DLLY	DLLZ	110.0	122.00	135.00	1	177.0	16.9	2
WS120P30SMC-AT	WS120P30SMC-B-AT	DLMY	DLMZ	120.0	133.00	147.00	1	193.0	15.5	2
WS130P30SMC-AT	WS130P30SMC-B-AT	DLNY	DLNZ	130.0	144.00	159.00	1	209.0	14.4	2
WS150P30SMC-AT	WS150P30SMC-B-AT	DLPY	DLPZ	150.0	167.00	185.00	1	243.0	12.3	2
WS160P30SMC-AT	WS160P30SMC-B-AT	DLQY	DLQZ	160.0	178.00	197.00	1	259.0	11.6	2
WS170P30SMC-AT	WS170P30SMC-B-AT	DRLY	DRLZ	170.0	189.00	209.00	1	275.0	10.9	2

Typical Characteristics

Figure 1. Peak Pulse Power Rating Curve

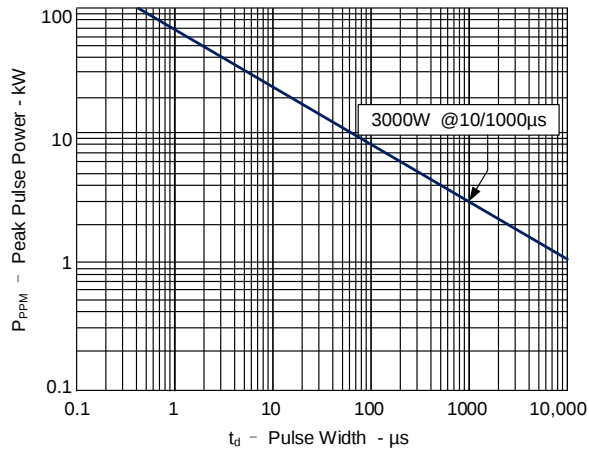


Figure 2. Pulse Derating Curve

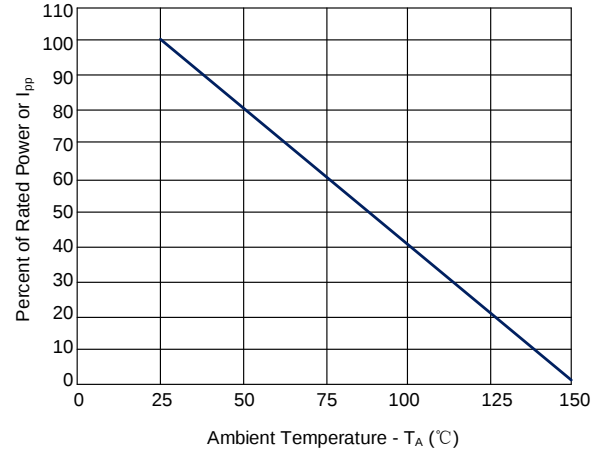


Figure 3. Pulse Waveform

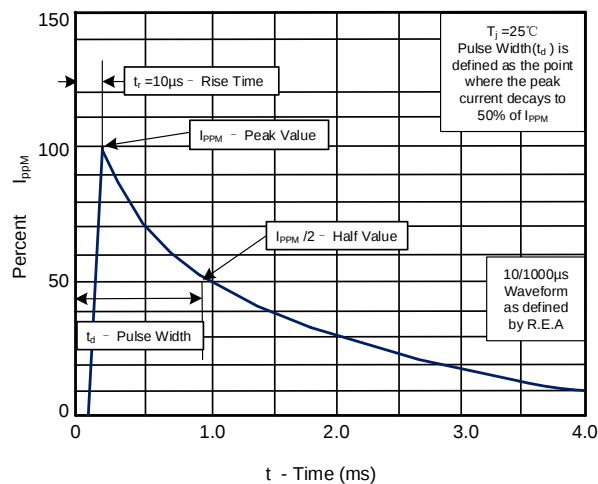
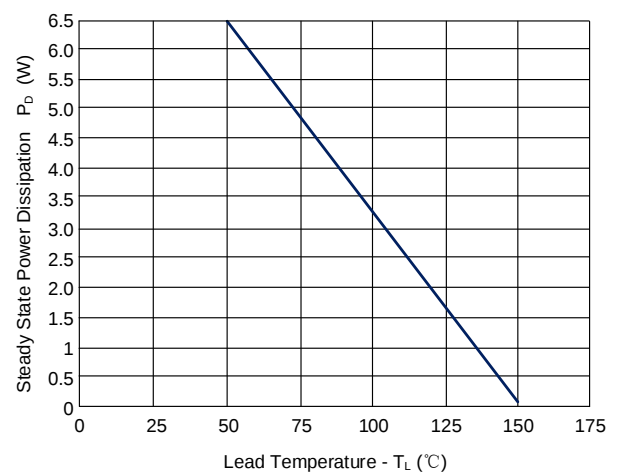


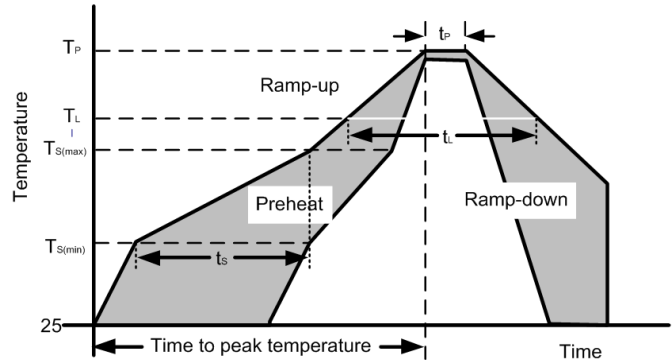
Figure 4. Steady State Power Dissipation Derating Curve



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

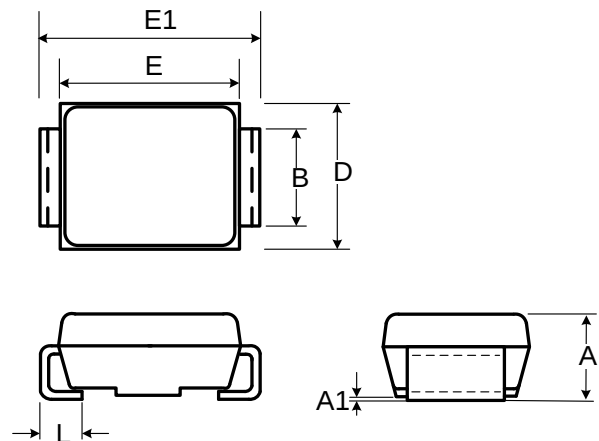
Soldering Parameters

Reflow Condition		
Pre Heat	Temperature Min ($T_{S(min)}$)	150°C
	Temperature Max ($T_{S(max)}$)	200°C
	Time (min to max) (t_s)	60-190 s
Average ramp up rate (Liquidus Temp) (T_L) to peak		3°C/s max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		260°C

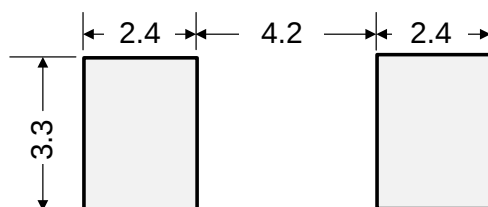


Outline Drawing – SMC (DO-214AB)

Ref. (mm)	Millimeters	
	Min.	Max.
A	2.06	2.70
A1	-	0.30
B	2.90	3.20
E	6.60	7.40
E1	7.75	8.13
D	5.59	6.22
L	0.76	1.52

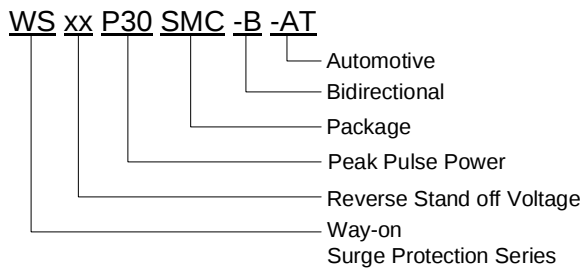


Recommended Solder Pad Layout

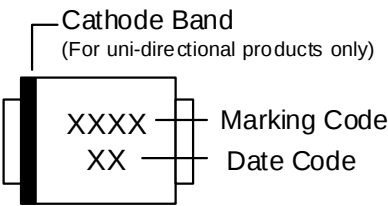


Dimensions in mm

Part Numbering System



Part Marking System



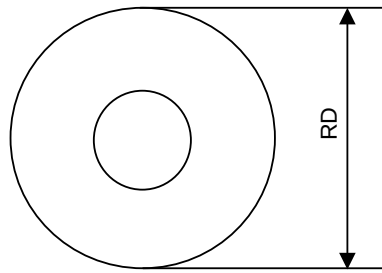
Package Information

Package Type	Description	Quantity (pcs)
SMC(DO-214AB)	Tape & Reel -16mm/13" tape	3000

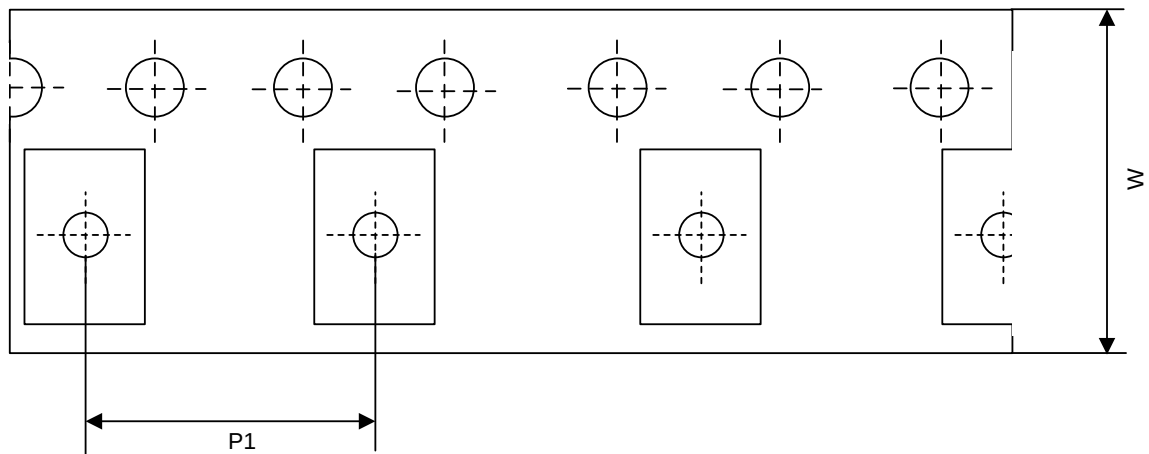
Tape and Reel Information

RD	Reel Dimensions	13 inch
W	Overall width of the carrier tape	16 mm
P1	Pitch between successive cavity centers	8 mm

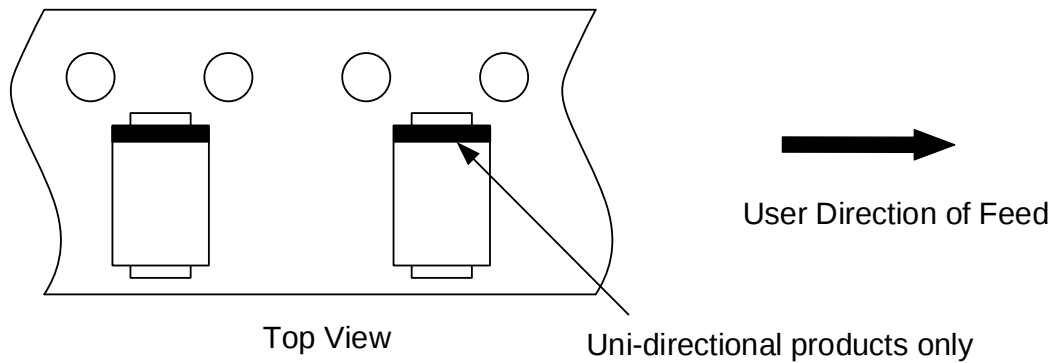
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



Contact Information

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