Type SM Series

Key Features

Low Profile Design

Available on Tape

Very Wide Value Range

Ideal for Power Circuitry

Available in 4 ratings up to 7 Watts

Flameproof Coating UL94V0

Moisture sensitivity level - MSL1

TE Connectivity (TE) introduces a surface mount power resistor suited to meet today's circuit design needs. Each size offers low profile case design with flexible tinned copper terminations for reliable solder joints. All styles utilize a fully welded construction technique, unlike other designs that rely solely on tinned termination connections. These features allow the SM Series to withstand the higher temperatures associated with reflow, vapour phase, or infrared (IR) manufacturing processes without degradation. Now also available at 7W power rating.

Note: *SMD (Surface mount devices) resistors and inductors should be kept in their original packaging to protect them from ESD (Electrostatic Discharge). The full reels can be broken into smaller quantities, without exposing them to ESD, as long as the components are still in the plastic or paper tape. These resistors and inductors should not be removed from the plastic or paper tape unless they are in an ESD protected environment.*

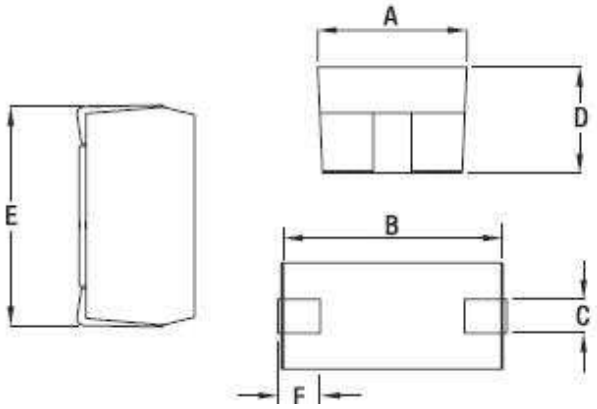
Characteristics – Electrical

	SMW – Wire	SMF – Metal Film
Values SM_2:	R10 – 200R	201R – 2M
Values SM_3:	R10 – 300R	301R – 2M
Values SM_5:	R10 – 500R	501R – 2M
Values SM_7:	R10 – 1K0	1K1 – 2M
Value Grid:	E24	
Resistance Tolerance:	**1% or 5%**	
Power Rating @ 20°C SM_2:	2.0 Watts	
Power Rating @ 20°C SM_3:	3.0 Watts	
Power Rating @ 20°C SM_5:	5.0 Watts	
Power Rating @ 20°C SM_7:	7.0 Watts	
Derating:	See Curve Below	
Max Operating Voltage SM_2:	300 Volts	
Max Operating Voltage SM_3:	500 Volts	
Max Operating Voltage SM_5:	500 Volts	
Max Operating Voltage SM_7:	750 Volts	
Operating Temperature Range	-55 ~ 200°C	

Environmental Characteristics

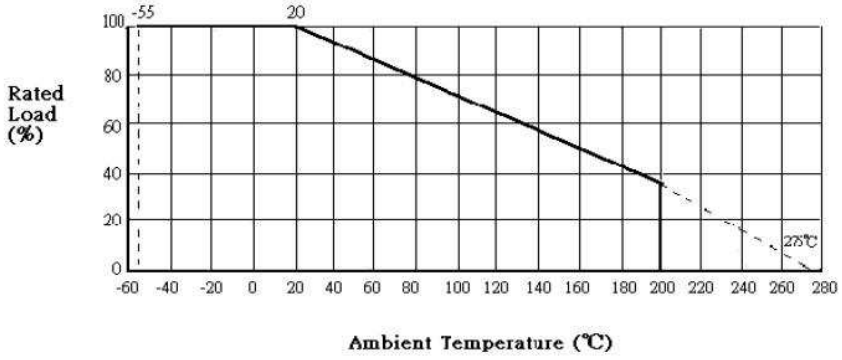
Test	Condition	SM (Wire)	SM (Metal Film)
Temperature Coefficient of Resistance:	-55°C – +200°C	± 200ppm /°C	± 100ppm /°C
Temperature Cycle	Step / Temp.°C / Time m 1 / -55±3 / 30 2 / Room Temp. / 2~3 3 / 200±3 / 30 4 / Room Temp / 2~3	Resistance change Rate within ±1%	
Short Time Overload:	5 times of rated wattage for 5 sec.	± 1%	± 0.5%
Rated Load:	Rated voltage for 30 minutes	± 3%	± 1%
Insulation Resistance:	500VDC	10,000 MΩ	10,000 MΩ
Load Life:	70°C 1.5 hrs on 0.5 hrs off for 1000 hrs	± 2% (7W ±5%)	± 1% (7W ±5%)
Humidity Load Life:	40°C ±2°C @ 90-95% RH 500 hrs 1.5 hrs on 0.5 hrs off	± 2% (7W ±5%)	± 1% (7W ±5%)
Voltage Withstand:	500VAC for 60 seconds No Physical damage	No Physical damage	
Solderability:	235°C ±5°C for 2 seconds	95% coverage	
Resistance to Soldering Heat:	270°C ±5°C for 10 ±1seconds	Resistance value change within ± 1%	

Dimensions

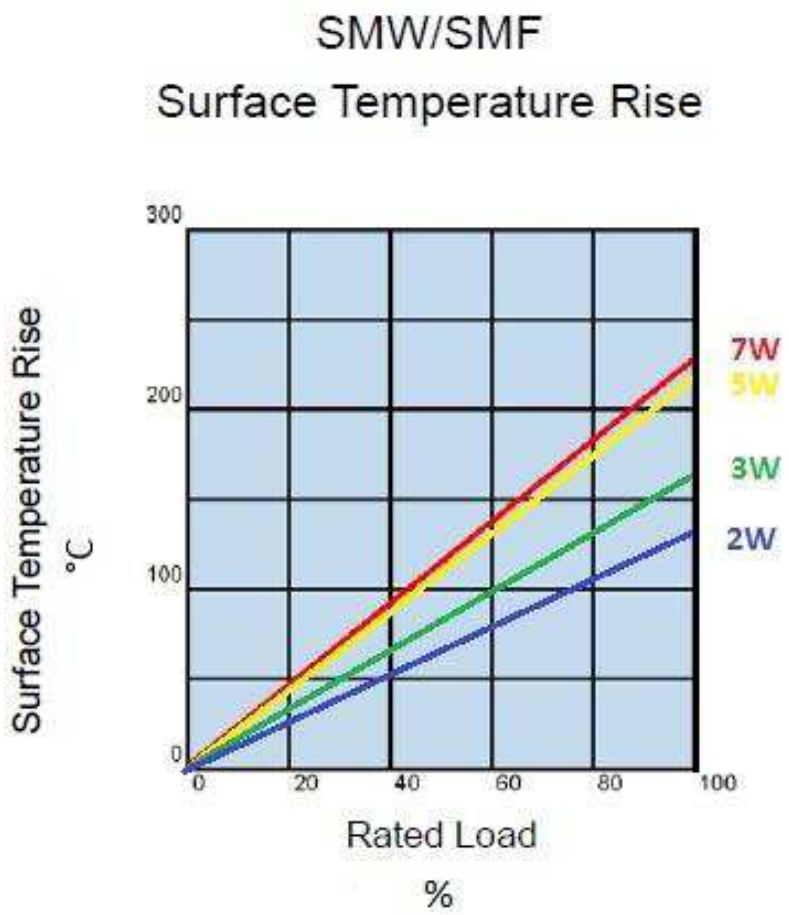


	A±0.3	B±0.3	C±0.3	D±0.3	E Max.	F±0.3	Reel Qty
SM 2W	4.0	6.7	1.4	3.55	7.9	1.5	2000
SM 3W	5.5	10.5	1.7	5.0	12.0	2.3	1000
SM 5W	7.3	13.5	1.7	6.8	17.0	2.5	1000
SM 7W	9.5	23.0	5.0	9.6	24.5	4.5	300

Derating Curve

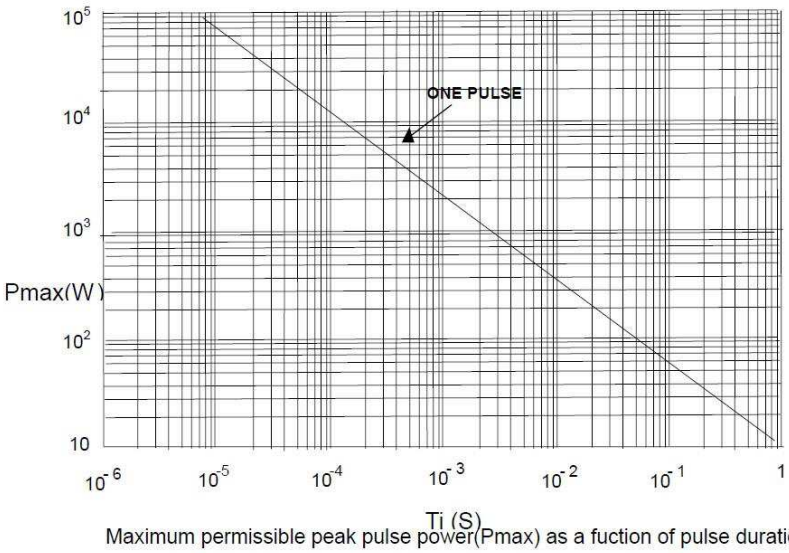


Surface Temperature rise



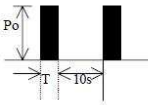
SM Series Pulse Characteristics

SMW 2W

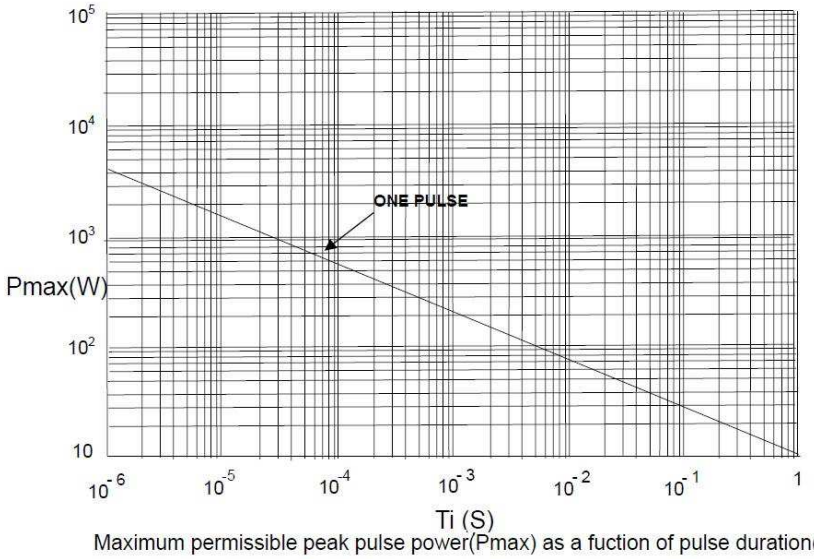


Maximum permissible peak pulse power(Pmax) as a fuction of pulse duration(Ti)

Condition test: Resistance change ≦ ±5% with pulse 1000 cycles as like the figure.(Reference Only)
1. Added power and added voltage are within the lower teritory of this graph.
2. Added in normal temperature and humidity.



SMF 2W



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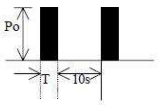
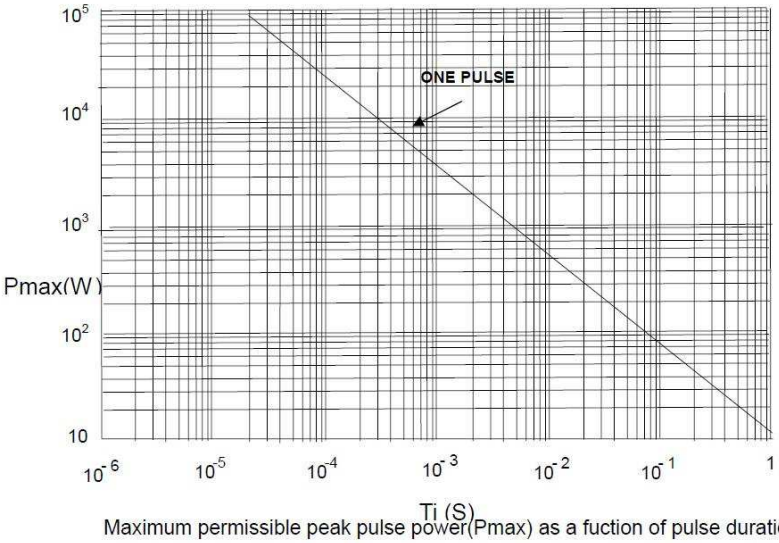


SMW 3W



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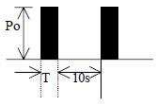
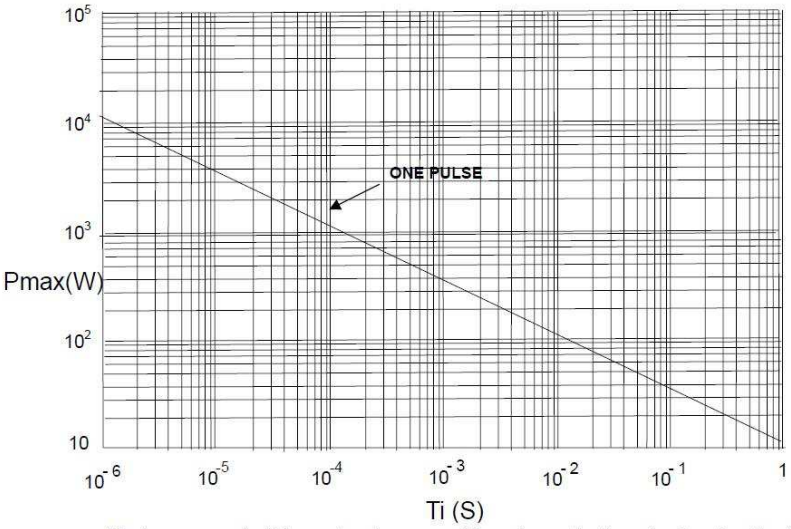


SMF 3W



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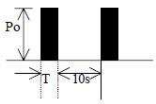
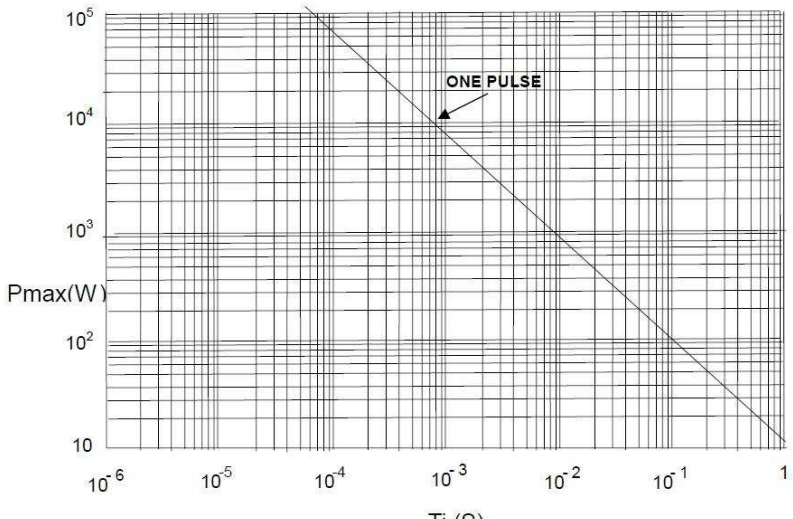


SMW 5W



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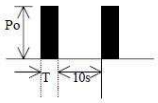
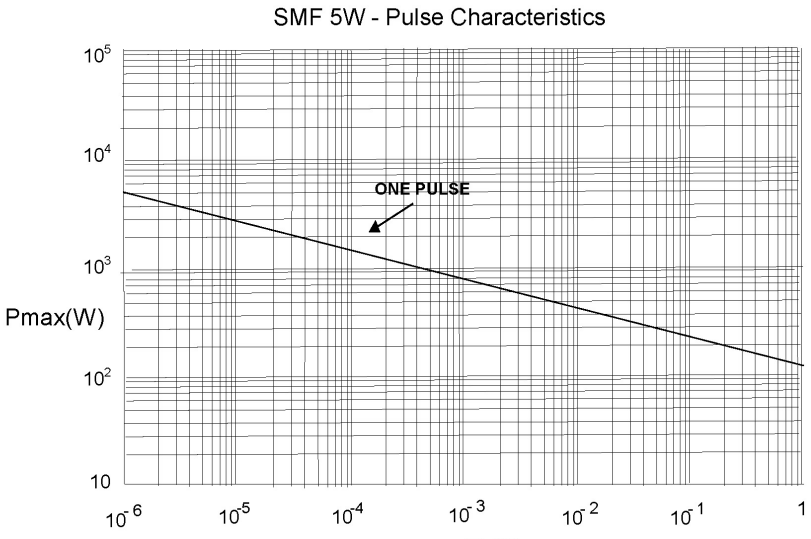
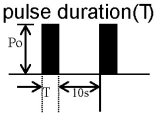


SMF 5W

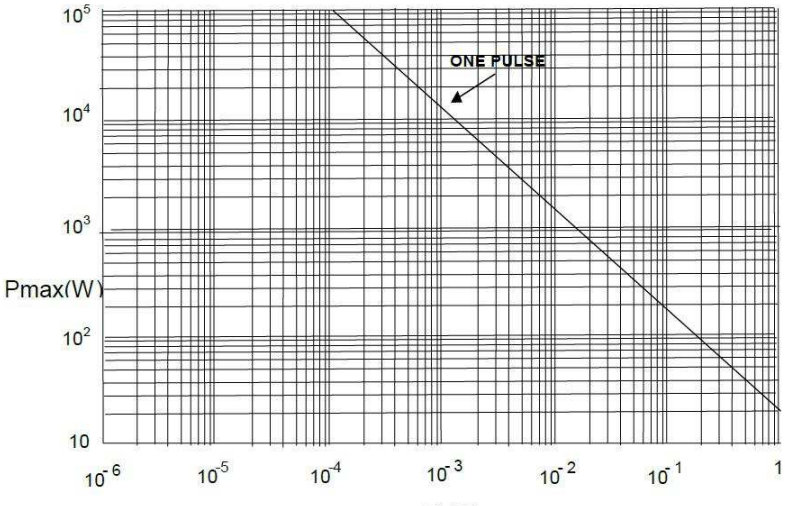


Maximum permissible peak pulse power(Pmax) as a fuction of pulse duration(T)

Condition test: Resistance change ≦±5% with pulse 1000 cycles as like the figure.(Reference Only)
1. Added power and added voltage are within the lower teritory of this graph.
2. Added in normal temperature and humidity.

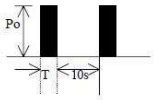


SMW 7W

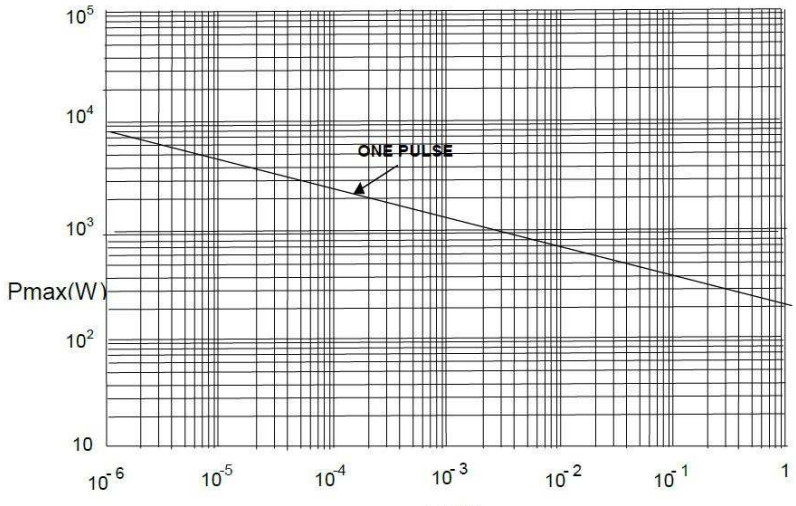


Maximum permissible peak pulse power(Pmax) as a fuction of pulse duration(Ti)

Condition test: Resistance change ≦ ±5% with pulse 1000 cycles as like the figure.(Reference Only)
1. Added power and added voltage are within the lower teritory of this graph.
2. Added in normal temperature and humidity.



SMF 7W



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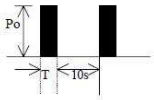
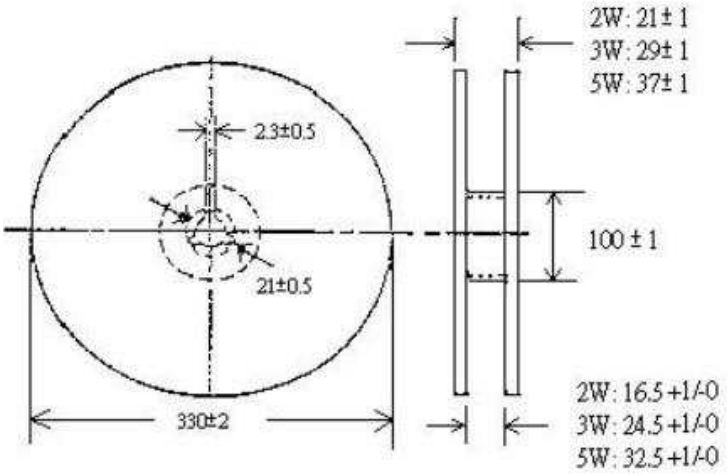


Marking

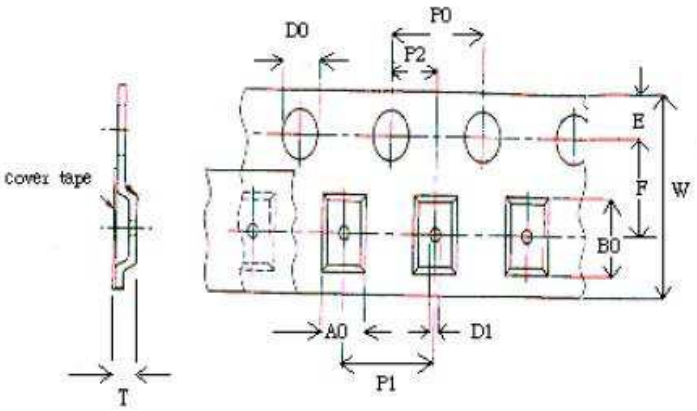
Packaging

SM 2W – 5W

Reel



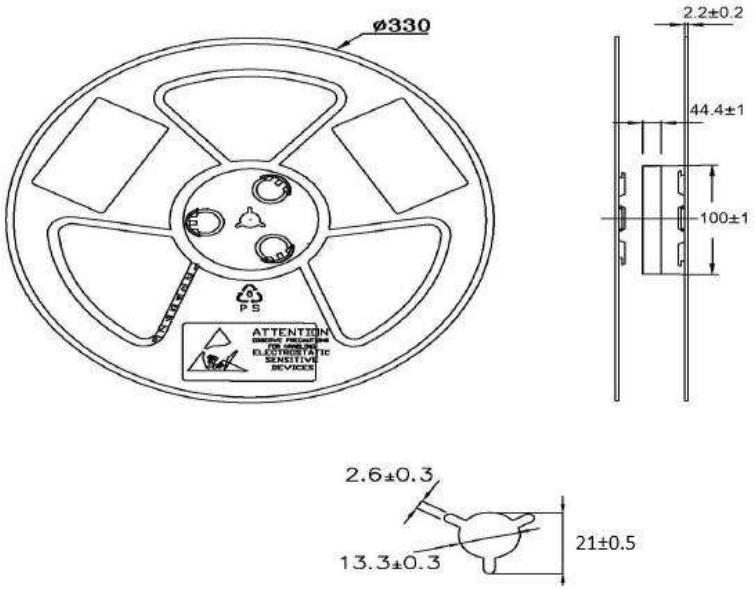
Tape



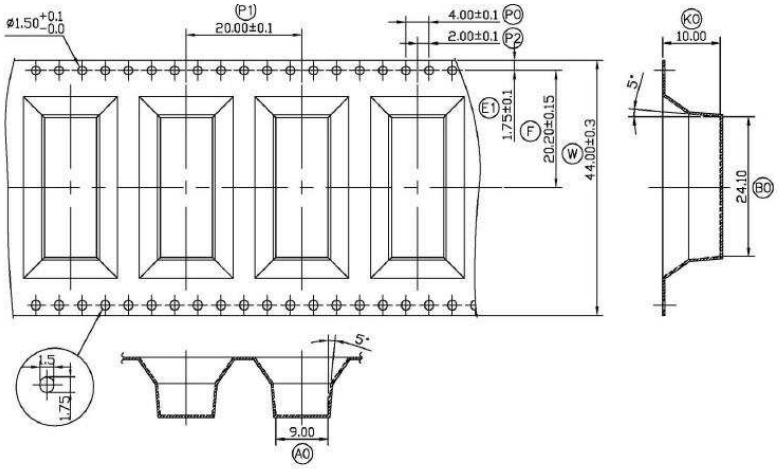
Rated Power	B0 ± 0.2	A0 ± 0.2	P1 ± 0.1	P2 ± 0.1	P0 ± 0.1	D0 ± 0.1	E ± 0.1	F ± 0.1	W ± 0.3	D1 ± 0.1	T ± 0.1	pcs/reel
2W	8	4.3	8	2	4	1.5	1.75	7.5	16	1.5	4.15	2000
3W	11.8	5.8	12	2	4	1.5	1.75	11.5	24	1.5	5.8	1000
5W	17.5	7.8	16	2	4	1.5	1.75	14.2	32	1.5	7.5	500

SM 7W

Reel



Tape



How To Order

SMF	3	10K	F	T
Common Part	**Case size**	**Resistance value**	**Tolerance**	**Pack Style**
SMW - Wirewound SMF - Metal Film	2 - 2 Watts 3 - 3 Watts 5 - 5 Watts 7 - 7 Watts	0.1 ohm (100 milli ohms) - R10 1 ohm -1R0 100 ohm -100R 1K ohm (1000 ohms) -1K0 100K ohm (100,000 ohms) - 100K	J – ±5% F – ±1%	T – Tape & Reel