•FEATURE

1. Shielding for good in EMI and Low Profile for large current
2. Suitable for power line & signal line circuit
3. Operating Temperature: -40 ~ +125℃
4. Compliant with AEC-Q200

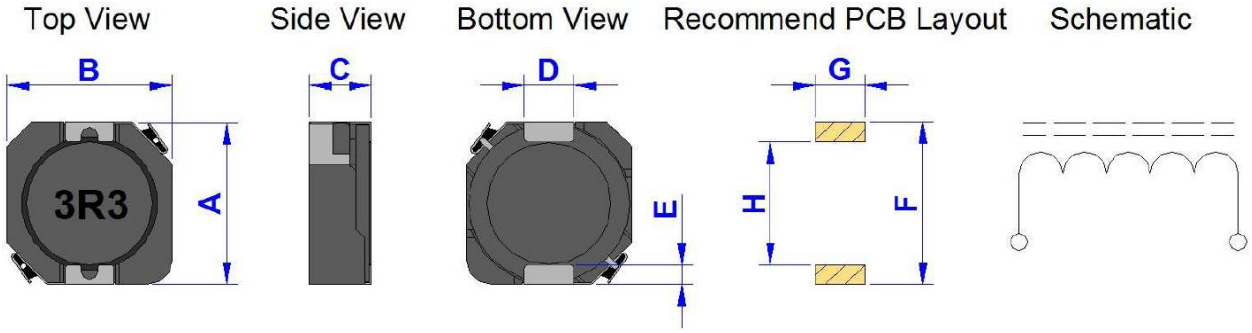
•APPLICATION

Mobil Device, Handheld Device, LowProfile Device, Panel.

•ORDERING INFORMATION

WSF	10D40	U	-330	T	Q
Series	Dimension (L*W*H)	Material code	Impedance (Ω)	Tolerance M=±20%,Y=±30%	AEC-Q

•SHAPE AND DIMENSION



•SPECIFICATION

Unit: mm

Type	A	B	C	D	E	F	G	H
10D40	10.20±0.50	10.00±0.50	3.80±0.20	3.00 Typ.	1.25 Typ.	10.70 Ref.	3.80 Ref.	7.30 Ref.

●ELECTRICAL CHARACTERISTICS

Part Number	Inductance (uH) at 100kHz, 1V	Tolerance (T)	D.C.R (Ω)(Max.) at 20℃	Isat (A) Max.	Irms (A) Max.
WSF10D40-R33T	0.33	Y	4.2m	12.00	8.50
WSF10D40-R68T	0.68	Y	6.0m	11.00	7.50
WSF10D40-1R0T	1.00	Y	10.0m	10.00	6.50
WSF10D40-1R3T	1.30	Y	8.1m	10.00	6.50
WSF10D40-1R5T	1.50	Y	8.1m	10.00	6.10
WSF10D40-1R8T	1.80	Y	10.0m	9.20	6.10
WSF10D40-2R2T	2.20	Y	10.0m	7.60	6.10
WSF10D40-2R5T	2.50	Y	10.5m	7.50	6.10
WSF10D40-3R0T	3.00	Y	12.0m	7.50	6.10
WSF10D40-3R3T	3.30	M	13.0m	7.50	6.10
WSF10D40-3R8T	3.80	Y	13.0m	6.00	5.50
WSF10D40-4R7T	4.70	Y	21.0m	5.70	5.60
WSF10D40-5R2T	5.20	Y	22.0m	5.50	5.40
WSF10D40-5R6T	5.60	Y	29.0m	5.30	5.00
WSF10D40-6R8T	6.80	Y	27.0m	4.80	4.50
WSF10D40-7R0T	7.00	Y	27.0m	4.80	4.50
WSF10D40-8R2T	8.20	Y	34.0m	4.40	3.80
WSF10D40-100T	10.00	M	35.0m	4.40	3.80
WSF10D40-120T	12.00	M	46.0m	3.70	3.70
WSF10D40-150T	15.00	M	50.0m	3.60	3.10
WSF10D40-180T	18.00	M	70.0m	3.20	2.60
WSF10D40-220T	22.00	M	73.0m	2.90	2.50
WSF10D40-270T	27.00	Y	87.0m	2.40	2.30
WSF10D40-330T	33.00	M	93.0m	2.30	2.20
WSF10D40-470T	47.00	M	128.0m	2.10	1.90
WSF10D40-680T	68.00	M	213.0m	1.50	1.42
WSF10D40-820T	82.00	M	265.0m	1.40	1.32
WSF10D40-101T	100.00	M	304.0m	1.35	1.25
WSF10D40-151T	150.00	M	506.0m	1.15	0.85
WSF10D40-221T	220.00	M	756.0m	0.92	0.70
WSF10D40-331T	330.00	M	1.09	0.70	0.52
WSF10D40-681T	680.00	M	2.30	0.45	0.45
WSF10D40-821T	820.00	M	2.60	0.49	0.30

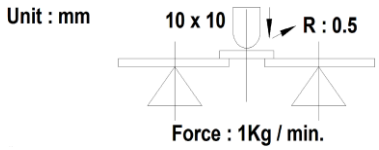
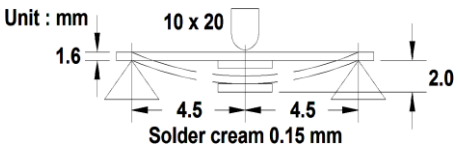
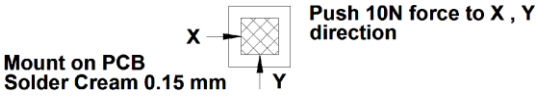
* Measuring Freq. (L): at @100KHz / 1Volt

* T=Tolerance: Y=±30%, M±20%

* Isat: The current when the inductance decreases to 65% of initial value.

* Irms: The current when the temperature of coil is increased by 40℃.

●RELIABILITY

<table>
<tr><th>Test Item</th><th>Test Condition</th><th>Specification</th></tr>
<tr><td>Dimension</td><td>Actual Size ...</td><td>Meet Spec</td></tr>
<tr><td>Thermal Shock
(Temperature Cycle)</td><td>Temperature: -40 ~ +125℃ kept stabilized for 30 min. each
Cycle: 100 Cycles (power off)</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Humidity Resistance</td><td>Humidity: 90% ~ 95% RH
Temperature: 60 ± 2℃ Test Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>High Temperature</td><td>Temperature: 125 ± 2℃
Testing Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Low Temperature</td><td>Temperature: -40 ± 2℃
Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Temperature and
Humidity Cycle</td><td><table><tr><th>Temperature</th><th>Humidity</th><th>Time</th></tr><tr><td>25℃</td><td>90% ~ 95% RH</td><td>3.0 Hr</td></tr><tr><td>55℃</td><td>95% ~ 96% RH</td><td>5.0 Hr</td></tr><tr><td>25℃</td><td>90% ~ 95% RH</td><td>3.0 Hr</td></tr></table>Cycle: 20 Cycles</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Vibration</td><td>Frequency: 10Hz ~ 55Hz , Amplitude: 1.5 mm
Direction: X, Y, Z, Time: 2 Hours each</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Solderability</td><td>Go through real SMT IR-Reflow ....
The profile like our suggest profile.
Preheat: 160 ± 10℃ (90 sec)
Peak: 245 ± 5℃
Peak Time: 50 Sec. / up 217℃</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Soldering Heat
Resistance</td><td>Preheat: 160 ± 10℃ (90 sec)
Solder: Sn / Ag / Cu (Pb Free)
Solder Temp.: 260 ± 5℃, Time: 3 ± 1 seconds</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Iron Solder Heat
Resistance</td><td>Solder Temp.: 350 ± 5℃
Flux: Rosin, Time: 3 ± 1 seconds</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Bending Strength</td><td> 
</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Flexure Strength</td><td> 
</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Terminal Strength</td><td> 
</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>High-Voltage</td><td>100 V DC between core & winding</td><td>Elec. no variation
Appearance no deformation</td></tr>
<tr><td>Load life</td><td>Temperature: 25 ± 3℃
Load: Allowed DC Current, Test Time: 96 ± 2 Hours</td><td>Elec. no variation
Appearance no deformation</td></tr>
</table>

•TEST EQUIPMENT

1. HP4284A, HP42841A - L, Q, DCR, IDC
2. HP8753D Network analyzer – SRF

•OPERATING & STORAGE CONDITION

1. Operating Temp: -40 ~ +125℃ (Including self - temperature rise)
2. Storage Temp: a. Product with Taping: -10 ~ 45℃, 50 ~ 60% RH
   b. On Board: -40 ~ +125℃
3. Storage Life Time: 12 Month (Less than 40℃ and 60% RH)

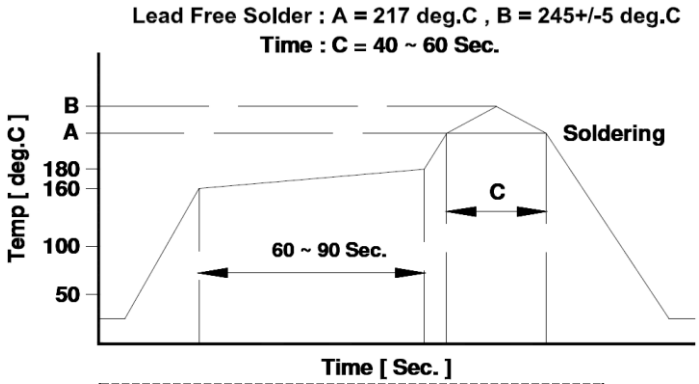
Standard Atmosphere Conditions:

Ambient Temperature 20 ± 15℃; Humidity RH 65 ± 20%

If there may be any doubt on the test result, Measurement shall be made within the following limits:

Ambient Temperature 25 ± 5℃; Humidity RH 75 ± 10%

•RECOMMEND REFLOW CURVE (TIME: Second)



Notice: Iron Soldering, Solder < 30 Watt,
Direct touch the terminal x 3 Sec. Max. @ 350℃

•ATTENTION & CAUTION:

* Keep out of Splashing water or salt water
* Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
* Vibrations or shocks which exceed the specified condition
* Dew condense
* Layout near the edge of PCB
* Over flexure after SMT mounting & PCBA
* Pin foot or SMD pad solder ability: Pb free type is best within 6 months after delivery
* Humidity sensitive, IPC/JEDEC J-STD-020 MSL if over Level 1, recommend bake 30mins@150℃ before PCBA
* Caution for human life relative applications: PLS contact & consult with AiT team in design stage.

Care Note for Use:

(1) Storage Condition:
Temperature 25 to 35℃, Humidity 45 to 60% RH

(2) Use Temperature:
a. Minimum Temperature: -40℃ Ambient temperature of this product.
b. Maximum Temperature: +125℃ The value of temperature including ambient and temperature rise of this product.
c. Reliability test temperature range from -40 ~ +125℃
d. However, this is not meant as temperature grade guarantee for UL.

(3) Model:
When this product was used in a similar or as new product to the original one, sometimes it might be unable to satisfy the specifications due to difference in condition of usage.

(4) Drop:
If this product suffered mechanical stress such as drop, characteristics may become poor (due to damage on coil / bobbin / ferrite … etc.)
Never use such stressed product.

Care Note for Safety:

(1) Provision to Abnormal Condition:
This product itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc.
Therefore, it shall be confirmed from the end product that there is no risk of smoking, fire, dielectric withstand voltage insulation resistance, etc. in abnormal conditions to provide protective devices and /or protection circuit in the end product.

(2) Temperature Rise:
Temperature rise on this product depends on the installation condition on end products.
It shall be confirmed on the actual end product that temperature rise of this product is within the specified temperature class limit.

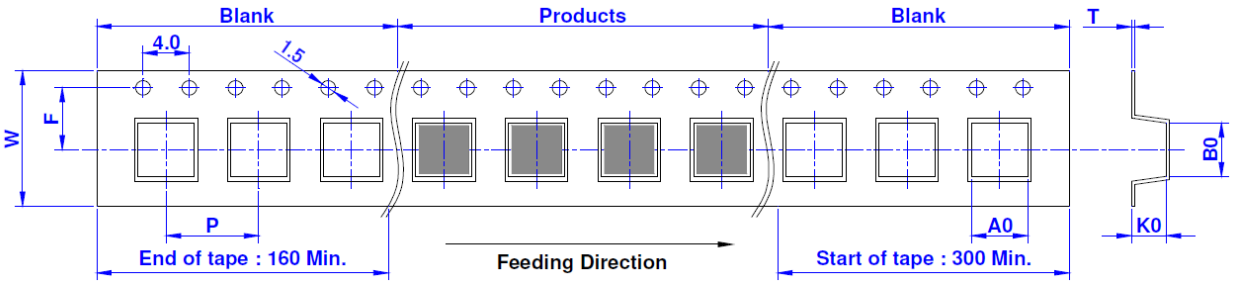
(3) Dielectric Strength:
Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.

(4) Water:
This product must not be used in wet condition resulted from water, coffee or any liquid contact because insulation strength becomes very low under such condition.

(5) Potting:
If this product is potted in some compound, coating material of magnet wire might be occasionally damaged. Please ask us if you intend to pot this product.

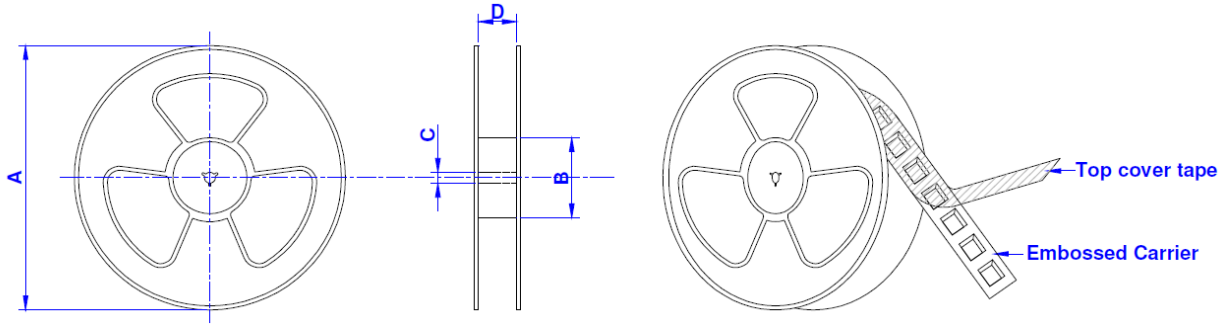
(6) Detergent:
Please consult AiT Semi immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

•TAPE DIMENSION: mm



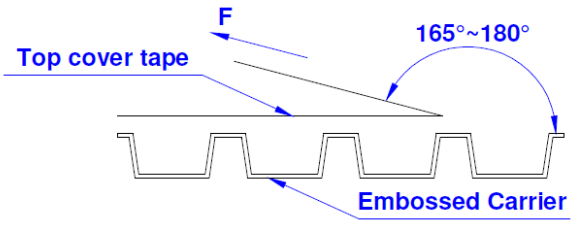
SIZE/mm	W	P	A0	B0	K0	T	F
10D40	24.00	16.00	10.70	10.70	4.10	0.35	11.50

•REEL DIMENSION: mm



SIZE / mm	REEL SIZE	A	B	C	D	QTY/REEL
10D40	13” x 24 mm	330	100	13	24.5	800 PCS

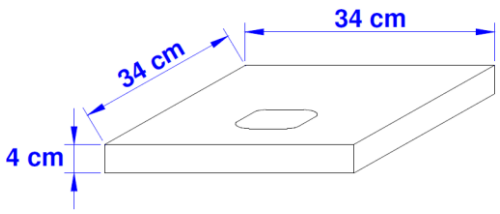
•TEARING OFF FORCE:



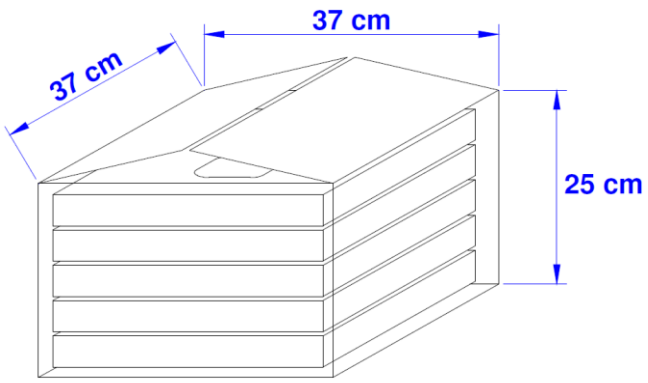
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA - 481 - D - 2008 of 4.11stadnard).

Room Temp. (℃)	Room Humidity (%)	Room Atm. (hPa)	Tearing Speed (mm / min)
5 ~ 35	45 ~ 85	860~1060	300

•BOX PACKAGE: cm



13" Small Box



Large Box

SIZE/mm	Reels in Small Box	Small Box in Large Box
10D40	1	5

IMPORTANT NOTICE

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