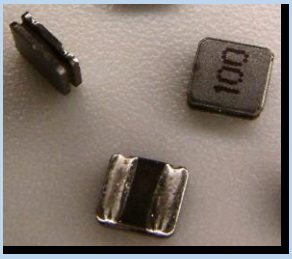
IWDAE Series

Wire Wound SMT Shielded Power Inductors (Metal Alloy Core)

TRIGON COMPONENTS



FEATURES

- Small miniature size, (low profile)
- Magnetic shielded construction
- High current saturation
- For new generation portable product D/D converter unit
- RoHS Compliant

APPLICATIONS

- Cellular phones HDD, etc
- PDAs，Handheld computer
- Digital cameras
- MP3 players，GPS receivers
- DVC, DSC, PDA, LCD display

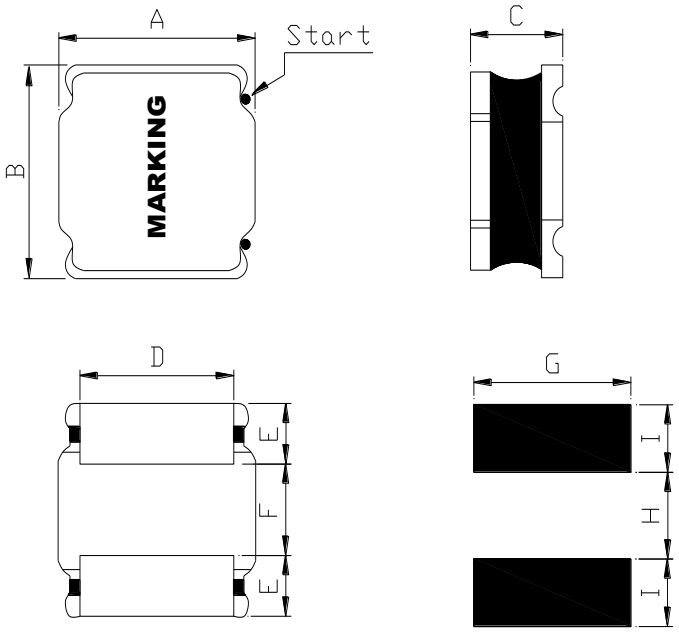
ORDERING CODE

IWDAE	2512	M	R47	T
(1)	(2)	(3)	(4)	(5)

(1) SMT Shielded Power Inductor:
(2) Element size
(3) Tolerance Code:
M: 20%, N: 30%
(4) Inductance Code:
R24:0.24uH
1R0:1.0uH
1R5:1.5uH
100:10uH
(5) Package:
T: Tape/Reel (Standard)

※Please refer to complete Ordering Code document (IWDAE-Ord) for more ordering options.

CONFIGURATIONS:



DIMENSION:

ITEM	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)
IWDAE2016	1.6±0.2	2.0±0.2	1.08Max	0.6±0.2	0.6±0.2	2.0±0.2	1.6	0.8	0.8
IWDAE2512	2.0±0.2	2.5±0.1	1.2±0.1	1.5±0.2	0.75±0.1	1.0	2.0	0.8	0.85
IWDAE2512A	2.0±0.2	2.5±0.2	1.26Max	1.5±0.2	0.80±0.2	0.8±0.2	2.0	0.8	0.85
IWDAE3012	3.0±0.2	3.0±0.2	1.2Max	2.5±0.2	0.75±0.2	1.5±0.2	2.7	1.5	0.8
IWDAE4020	4.0±0.2	4.0±0.2	2.0Max	3.1±0.2	0.95±0.2	2.1±0.2	3.7	1.9	1.1

Inductance Range:

ITEM	Inductance (uH)
IWDAE2016	0.24uH~4.7uH
IWDAE2512	0.24uH~10uH
IWDAE2512A	0.24uH~10uH
IWDAE3012	1.0uH~10uH
IWDAE4020	0.24uH~15uH

Inductor

IWDAE Series

Wire Wound SMT Shielded Power Inductors (Metal Alloy Core)

TRIGON
COMPONENTS

Part Numbers	Inductance （uH）	Tolerance (±%)	RdcTyp. (Ω)	Isat Typ. (A)	Isat MAX (A)	Irms Typ. (A)
IWDAE2016MR24T	0.24	M	0.033	5.50	4.50	3.45
IWDAE2016MR33T	0.33	M	0.041	5.20	4.40	3.10
IWDAE2016MR47T	0.47	M	0.041	4.70	4.06	3.10
IWDAE2016MR68T	0.68	M	0.057	4.00	3.50	2.80
IWDAE2016M1R0T	1.0	M	0.078	3.80	3.30	2.30
IWDAE2016M1R5T	1.5	M	0.110	2.30	1.95	2.00
IWDAE2016M2R2T	2.2	M	0.160	2.15	1.90	1.60
IWDAE2016M4R7T	4.7	M	0.370	1.40	1.10	1.00

※ Test Frequency: 1MHz, 0.1V
※ Test equipment:
※ L/Q: HP-4286A
※ SRF: HP-4291B, HP4287A
※ RDC: HP-4286A, CH16502
※ Isat: Based on Inductance decrease 30%
※ Irms: Base on Temperature increase 40°C
※ Operating temperature range from -40°C to 125°C (Including self-temperature rise)
※ Storage Temp.: -40°C to +85°C

IWDAE Series

Wire Wound SMT Shielded Power Inductors (Metal Alloy Core)

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COMPONENTS

Part Numbers	Inductance （uH）	Tolerance (±%)	RdcTyp. (Ω)	Isat Typ. (A)	Isat MAX (A)	Irms Typ. (A)
IWDAE2512□R24T	0.24	N, M	0.019	8.0	6.8	4.8
IWDAE2512□R33T	0.33	N, M	0.023	6.8	5.8	4.6
IWDAE2512□R47T	0.47	N, M	0.029	5.8	5.0	4.1
IWDAE2512□R68T	0.68	N, M	0.036	5.0	4.2	3.7
IWDAE2512□1R0T	1.0	N, M	0.041	4.3	3.7	3.5
IWDAE2512□1R5T	1.5	N, M	0.060	3.7	3.1	2.9
IWDAE2512□2R2T	2.2	N, M	0.084	3.0	2.5	2.4
IWDAE2512□3R3T	3.3	N, M	0.125	2.5	2.1	2.2
IWDAE2512□4R7T	4.7	N, M	0.200	2.3	2.0	1.7
IWDAE2512□100T	10.0	N, M	0.480	1.6	1.3	1.1

※ Test Frequency: 1MHz, 1V
※ Test equipment:
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※ RDC: HP-4286A, CH16502
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COMPONENTS

Part Numbers	Inductance（uH）	Tolerance (±%)	RdcTyp. (Ω)	Isat Typ. (A)	Isat MAX (A)	Irms Typ. (A)
IWDAE2512AMR24T	0.24	M	0.019	7.80	6.50	4.70
IWDAE2512AMR33T	0.33	M	0.023	6.30	5.35	4.30
IWDAE2512AMR47T	0.47	M	0.029	5.60	4.90	4.00
IWDAE2512AMR68T	0.68	M	0.039	4.50	3.80	3.60
IWDAE2512AM1R0T	1.0	M	0.048	4.20	3.60	3.40
IWDAE2512AM1R5T	1.5	M	0.060	3.50	2.90	2.80
IWDAE2512AM2R2T	2.2	M	0.100	3.00	2.60	2.15
IWDAE2512AM3R3T	3.3	M	0.175	2.10	1.70	1.80
IWDAE2512AM4R7T	4.7	M	0.225	1.90	1.60	1.45
IWDAE2512AM6R8T	6.8	M	0.305	1.40	1.20	1.10
IWDAE2512AM100T	10	M	0.435	1.35	1.10	1.00

※ Test Frequency: 1MHz/1V
※ Test equipment:
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※ RDC: HP-4286A, CH16502
※ Isat: Based on Inductance decrease 30%
※ Irms: Base on Temperature increase 40°C
※ Operating temperature range from -40°C to 125°C (Including self-temperature rise)
※ Storage Temp.: -40°C to +85°C

Part Numbers	Inductance（uH）	Tolerance (±%)	RdcTyp. (Ω)	Isat Typ. (A)	Isat MAX (A)	Irms Typ. (A)
IWDAE3012M1R0T	1.0	M	0.046	5.40	4.2	3.10
IWDAE3012M1R5T	1.5	M	0.062	4.10	3.4	2.90
IWDAE3012M2R2T	2.2	M	0.090	3.35	2.8	2.35
IWDAE3012M3R3T	3.3	M	0.144	2.60	2.2	1.80
IWDAE3012M4R7T	4.7	M	0.196	2.50	2.0	1.50
IWDAE3012M6R8T	6.8	M	0.290	1.90	1.6	1.25
IWDAE3012M100T	10	M	0.395	1.45	1.2	1.15

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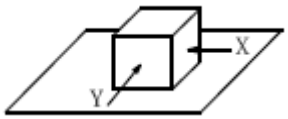
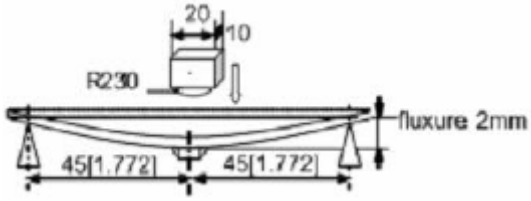
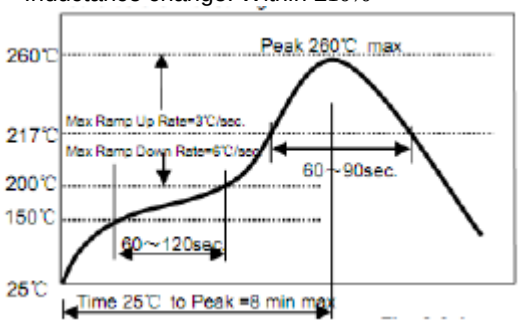
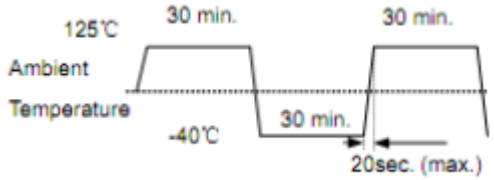
Part Numbers	Inductance（uH）	Tolerance (±%)	RdcTyp. (Ω)	Isat Typ. (A)	Isat MAX (A)	Irms Typ. (A)
IWDAE4020MR24T	0.24	M	0.013	17.0	14.0	7.00
IWDAE4020MR47T	0.47	M	0.016	12.0	11.0	6.80
IWDAE4020M1R0T	1.0	M	0.023	11.0	8.7	6.70
IWDAE4020M1R5T	1.5	M	0.032	9.6	7.7	6.00
IWDAE4020M2R2T	2.2	M	0.046	7.5	6.0	4.80
IWDAE4020M3R3T	3.3	M	0.073	5.9	4.7	4.00
IWDAE4020M4R7T	4.7	M	0.095	4.9	4.0	3.30
IWDAE4020M6R8T	6.8	M	0.130	4.2	3.0	2.80
IWDAE4020M100T	10	M	0.190	3.5	2.8	2.35
IWDAE4020M150T	15	M	0.305	2.8	2.1	0.98

※ Test Frequency: 1MHz/1V
※ Test equipment:
※ L/Q: HP-4286A
※ SRF: HP-4291B, HP4287A
※ RDC: HP-4286A, CH16502
※ Isat: Based on Inductance decrease 30%
※ Irms: Base on Temperature increase 40°C
※ Operating temperature range from -40°C to 125°C (Including self-temperature rise)
※ Storage Temp.: -40°C to +85°C

Reliability Test:

Items	Requirements	Test Methods and Remarks
1.Terminal Strength	No removal or split of the termination or other defects shall occur.  Fig: 1-1	1. Solder the inductor to the testing jig (glass epoxy board shown in Fing.1-1) using eutectic solder. Then apply a force in the direction of the arrow. 2. 10N force. 3. Keep time: 5s
2.Resistance to Flexure	No visible mechanical damage.  Fig: 2-1	1. Solder the chip to the test jig (glass epoxy board) Using eutectic solder. Then apply a force in the Direction shown as Fig.2-1 2. Flexure: 2mm 3. Pressurizing Speed: 0.5mm/sec 4. Keep time: 30±1s 5. Test board size: 100*40*1.0 6. Land dimension
3.Vibration	1. No visible mechanical damage. 2. Inductance change: Within±10%	1. Solder the chip to the testing jig (glass epoxy board shown as the following figure) using eutectic solder 2. The chip shall be subjected to a simple harmonic Motion having total amplitude of 1.5mm, the approximate limits of 10and 55Hz 3. The frequency range from 10 to 55Hz and return to 10Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).
4.Temperature coefficient	Inductance change: Within±2%	1. Temperature: -40˚C~+125˚C 2. With a reference value of +20˚C, change rate shall be calculated
5.Solderability	90% or more of electrode area shall be coated by new solder	1. The test samples shall be dipped in flux, and then immersed in molten solder. 2. Solder temperature: 245±5˚C 3. Duration: 5±1sec 4. Solder: Sn/3.0Ag/0.5Cu 5. Flux: 25% resin and 75% ethanol in weight 6. Immersion depth: all sides of mounting terminal shall be immersed
6. Resistance to Soldering Heat	1. No visible mechanical damage. 2. Inductance change: Within ±10%  Fig : 6-1	1. Re-flowing Profile: Please refer to Fig .6-1 2. Test board thickness: 1.0mm 3. Test board material: glass epoxy resin 4. The chip shall be stabilized at normal condition for 1~2 hours before measuring

Reliability Test:

7.Thermal Shock	1. No visible mechanical damage. 2. Inductance change: Within±10%  Fig 7-1	1. Temperature and time: -40±3˚C for 30±3 min 125˚C For 30±3 min. Please refer to Fig .7-1 2. Transforming interval: Max, 20sec 3. Tested cycle:100 cycles 4. The chip shall be stabilized at normal condition for 1~2 hours before measuring
8. Resistance to Low Temperature	1. No visible mechanical damage 2. Inductance change: Within ±10%	1. Temperature and time: -40±3˚C 2. Duration: 1000±24 hours 3. The chip shall be stabilized at normal condition for 1~2 hours before measuring
9. Resistance to High Temperature	1. No visible mechanical damage 2. Inductance change: Within ±10%	1.Temperature and time: 125±2˚C 2. Duration: 1000±24 hours 3. The chip shall be stabilized at normal condition for 1~2 hours before measuring
10.Damp Heat	1. No visible mechanical damage 2. Inductance change: Within ±10%	1. Temperature and time: 60±2˚C 2. Humidity: 90% to 95% RH 3. Duration: 1000±24 hours 4. The chip shall be stabilized at normal condition for 1~2 hours before measuring
11.Loading Under Damp Heat	1. No visible mechanical damage 2. Inductance change: Within ±10%	1.Temperature and time: 60±2˚C 2. Humidity: 90% to 95% RH 3. Applied current: Rated current 4. Duration: 1000±24 hours 5. The chip shall be stabilized at normal condition for 1~2 hours before measuring
12. Loading at High Temperature	1. No visible mechanical damage 2. Inductance change: Within ±10%	1. Temperature and time: 85±2˚C 2. Applied current: Rated current 3. Duration: 1000±24 hours 4. The chip shall be stabilized at normal condition for 1~2 hours before measuring

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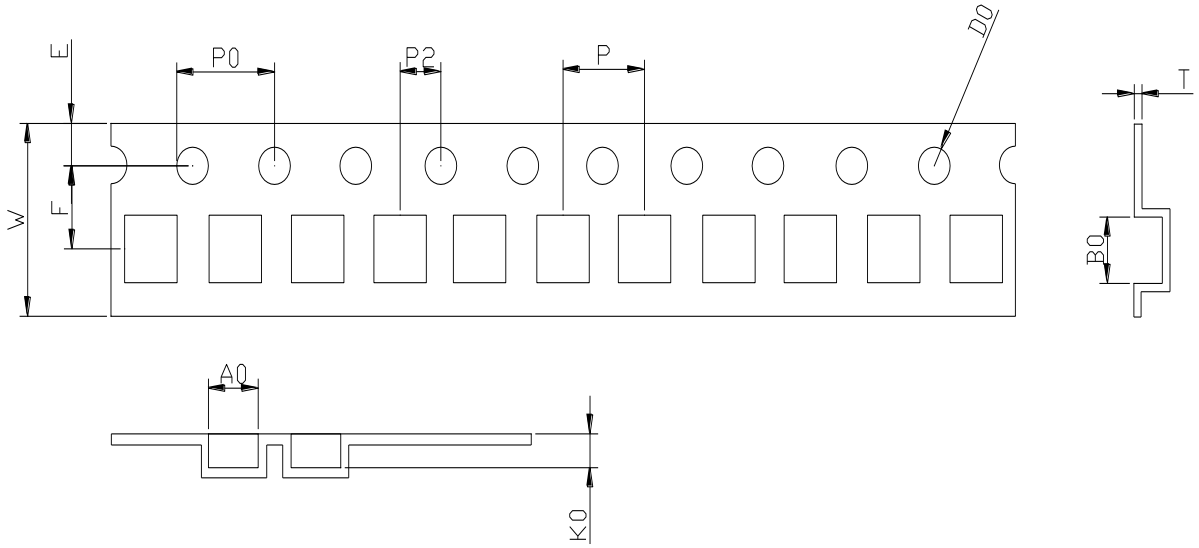
TRIGON
COMPONENTS

Tape
Dimensions:

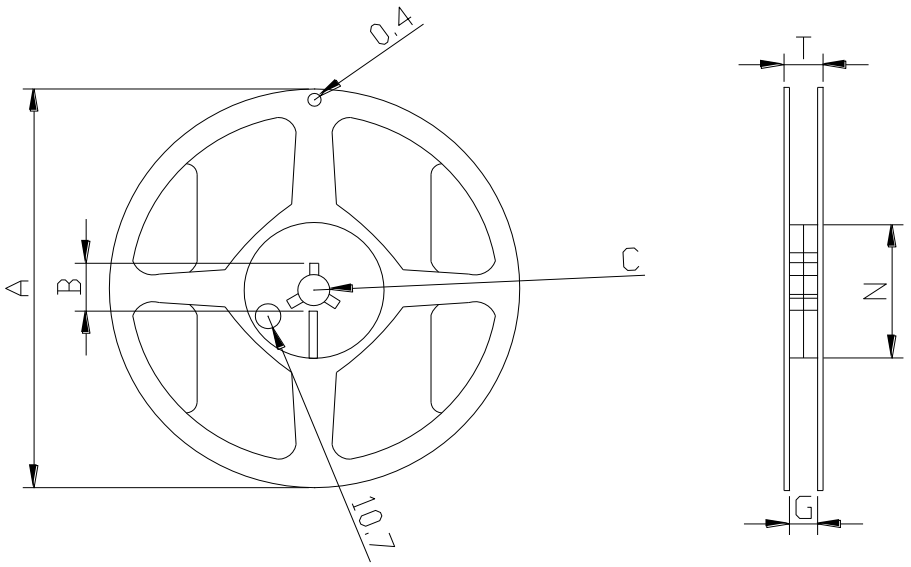


Inductor

(Dimensions in mm)

Symbol	A_0	B_0	K_0	W	P_0	P	P2	T	F	E	D0
IWDAE2512	2.35 ±0.1	2.90± 0.1	1.140 max	8+.3/-.1	4.0± 0.1	4.0± 0.1	2.0± 0.05	0.25± 0.05	0.25± 0.05	0.25± 0.05	0.25± 0.05
IWDAE2512A	2.35± 0.1	2.65± 0.1	1.4± 0.1	8±0.3	4.0± 0.1	4.0± 0.1	2.0± 0.1	0.25± 0.05	3.5± 0.1	1.75± 0.1	1.5±0.1
IWDAE3012	3.3± 0.05	3.3± 0.05	1.6± 0.1	8+0.1	4.0± 0.1	4.0± 0.1	2.0± 0.1	0.25± 0.05	3.5± 0.1	1.75± 0.1	1.5±0.1
IWDAE2016	2.0± 0.1	2.4± 0.1	1.2± 0.1	8±0.3	4.0± 0.1	4.0± 0.1	2.0± 0.1	0.25± 0.05	3.5± 0.1	1.75± 0.1	1.5±0.1
IWDAE4020	4.3± 0.1	4.3± 0.1	2.25± 0.1	12+0.3/- 0.1	4.0± 0.1	8.0± 0.1	2.0± 0.1	0.3± 0.05	5.5± 0.1	1.75± 0.1	1.5± 0.1

Reel dimensions



Symbol	A	B	C	G	N	T
IWDAE2512	178.0±2.0	21.0±0.8	13.0±0.8	12.5 max	8.4±1.0	50 min
IWDAE2512A	178	20.7±0.8	13.0±0.4	9	60	10.8
IWDAE3012	178	20.7±0.8	13.0±0.4	9	60	10.8
IWDAE2016	178	20.7±0.8	13.0±0.4	9	60	10.8
IWDAE4020	330±3	-	13.0±1.0	12.4±1.0	100	16.4±1.0

Packing Quantity

Symbol	Per Reel Q'ty(Pcs)	Per Box Q'ty(Pcs)	Per Carton Q' ty(Pcs)
IWDAE2512	2K	10K	60K
IWDAE2512A	2K	20K	80K
IWDAE3012	2K	16K	64K
IWDAE2016	2K	20K	80K
IWDAE4020	3K	9K	27K

Recommended Lead-Free IR Reflow Conditions: