## **SMD** Power Inductors

# SDT0804 Series



#### **FEATURES**

• Ultra high L and low current

Functions equally well in filter and smoothing circuit applications.
Available in 2 sizes.

#### **PRODUCT IDENTIFICATION**

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• Packaging: T: Tape and Reel

• Tolerance: M: ±20%

 Note: YAGEO will start to release SDT Series inductors with lead-free terminals which meet SONY SS-00259's criteria for leadfree product in Q2 of 2004, and TAGEO Internal No will be changed to "N" as identification. Ex. SDT0402T-IR0M-N

#### SHAPES AND DIMENSIONS



#### **APPLICATIONS**

Board mounted DC-DC converters

Miniature power supplies, and voltage multiplying circuits.

These inductors are designed for a wide variety of applications including board mounted DC-DC converters, miniature power supplies, and voltage multiplying circuits. They function equally well in filter and smoothing circuit applications.

The Yageo SDT Series represents the ultimate in cost effective miniature power inductors. They are constructed of materials specially developed for surface mount applications to ensure the best possible reliability and ease of use and handling.

SPECIFICATIONS				OPERATING PARAMETERS				
PART NO.	INDUCTANCE	DC	SRF	INDUCTANCE	CURRENT	ENERGY	SWITCHING	
	@100KHZ, 0 ADC (µH ±20%)	RESISTANCE (Ω) Max.	TYP (MHz)	RATING* (ΩH)	RAGING ** (A)	STORAGE (µ JOULES) Max.	FREQUENCY Max.	
SDT0804T-IR0M-S	1.0	0.025	60	0.50	5.0	9	I MHz	
SDT0804T-1R5M-S	1.5	0.030	55	0.70	5.0	12	I MHz	
SDT0804T-2R2M-S	2.2	0.035	55	1.00	5.0	15	I MHz	
SDT0804T-3R3M-S	3.3	0.040	50	1.50	5.0	16	I MHz	
SDT0804T-4R7M-S	4.7	0.045	45	2.00	3.0	10	I MHz	
SDT0804T-6R8M-S	6.8	0.050	40	4.00	2.5	14	I MHz	
SDT0804T-100M-S	10	0.055	35	5.00	2.0		I MHz	
SDT0804T-150M-S	15	0.060	25	6.00	1.8	12	I MHz	
SDT0804T-220M-S	22	0.084	22	10	1.5	11	I MHz	
SDT0804T-330M-S	33	0.090	18	12	1.3	13	I MHz	
SDT0804T-470M-S	47	0.11	16	27	1.0	13	I MHz	
SDT0804T-680M-S	68	0.15	12	40	0.90	17	I MHz	
SDT0804T-101M-S	100	0.29	9	50	0.80	15	I MHz	
SDT0804T-151M-S	150	0.36	8	80	0.60	15	500 KHz	
SDT0804T-221M-S	220	0.39	6	90	0.50	10	500 KHz	
SDT0804T-331M-S	330	0.73	5	150	0.40	13	500 KHz	
SDT0804T-471M-S	470	0.88	4	200	0.35	13	500 KHz	
SDT0804T-681M-S	680	1.15	3	300	0.30	13	500 KHz	
SDT0804T-102M-S	1000	1.45	2.5	420	0.25	13	500 KHz	

\* Measured at the rated current. Refer to curves below for more detail.

\*\* Average maximum allowable current. SDT Series inductors are designed for current spikes as high as 2X the current rating.

Operating Temperature Range -40°C to +85°C

Dimensions : mm

## ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

PART NO.				CURRENT	INDUCTANCE	MAX	MAX
	INDUCTANCE	RDC	SRF	RAGING	CE	ENERGE	SWITCHING
	(µH)	(Ω) Max.	(MHz)TYP	(A)	(uH)	(µ JOULES)	Frequency
SDT0804T-1R0 🗆 -S	1.0	0.025	60	5.0	0.5	9	I MHz
SDT0804T-1R5 🗌 -S	1.5	0.030	55	5.0	0.7	12	I MHz
SDT0804T-2R2 🗆 -S	2.2	0.035	55	5.0	1	15	I MHz
SDT0804T-3R3 🗆 -S	3.3	0.040	50	5.0	1.5	16	I MHz
SDT0804T-4R7 🗌 -S	4.7	0.045	45	3.0	2	10	I MHz
SDT0804T-6R8 🗆 -S	6.8	0.050	40	2.5	4	14	I MHz
SDT0804T-100 🗆 -S	10	0.055	35	2.0	5	П	I MHz
SDT0804T-150 🗆 -S	15	0.060	25	1.8	6	12	I MHz
SDT0804T-220 🗆 -S	22	0.084	22	1.5	10	11	I MHz
SDT0804T-330 🗆 -S	33	0.090	18	1.3	12	13	I MHz
SDT0804T-470 🗆 -S	47	0.11	16	1.0	27	13	I MHz
SDT0804T-680 🗆 -S	68	0.15	12	0.90	40	17	I MHz
SDT0804T-101 🗆 -S	100	0.29	9	0.80	50	15	I MHz
SDT0804T-151 🗆 -S	150	0.36	8	0.60	80	15	500 KHz
SDT0804T-221 🖂 -S	220	0.39	6	0.50	90	10	500 KHz
SDT0804T-331 🗆 -S	330	0.73	5	0.40	150	13	500 KHz
SDT0804T-471 🗆 -S	470	0.88	4	0.35	200	13	500 KHz
SDT0804T-681 🗌 -S	680	1.15	3	0.30	300	13	500 KHz
SDT0804T-102 -S	1000	1.45	2.5	0.25	420	13	500 KHz

I.Operating temperature range -40°C~85°C

2.Inductance Rating: Measured at the ratted current.SDT Series inductors are design for current

3. Current Raging: Average maximum allowable current. SDT Series inductors are design for current

spikes as high as 2X the current rating; TEST FREQUENCY :100 KHz/0.1V

"-N"FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)

## TYPICAL INDUCTANCE ENERGY STORAGE VS. CURRENT









## **TAPE DIMENSIONS**

#### **TAPE MATERIAL**

Carrier Tape : Polystyrene

Cover Type : Polyethylene





## **REEL DIMENSIONS**



## **RECOMMENDED PATTERN**

#### Land Pattern



#### Dimensions : mm

ТҮРЕ	TAPE DIMENSIONS					RECOMMENDED PATTERN			REEL DIMENSIONS			QUANTITY PCS/REEL					
	К0	D	E	w	P	P0	P2	A	В	с	D	A	В	с	D	178	330
SDT0402	3.2	1.55	1.75	12	8	4	2	6.86	4.06	3.56	1.40	330	100	13	13.4	-	2500
												178	60	13	13.2	750	-
SDT0804	5.4	1.55	1.75	24	16	4	2	13.21	7.37	2.79	2.92	330	100	13	24.4	-	750

#### **SDT SERIES RELIABILITY TEST**

I-I MECHANICAL PERFORMANCE								
NO.	ITEM	SPECIFICATION	TEST CONDITIONS					
1-1-1	Vibration	Appearance : No Damage	Test device shall be soldered on the substrate.					
		L Change : within ±10%	Oscillation Frequency : 10 to 55 to 10Hz for 1Min.					
		Q Change : within ±30%	Amplitude : I.5mm					
		RDC : within Specification	Time : 2Hrs. for each Axis (X,Y & Z), Total 6Hrs.					
1-1-2	Resistance to	Appearance : No Damage	Pre-heating : 150°C, 1Min.					
	Soldering Heat		Solder Composition : Sn/Pb = 63/37					
			Solder Temperature : 260 ± 5°C					
			Immersion Time : $10 \pm 1$ Sec.					
1-1-3	Solderability	The electrodes shall be at least 90% covered	Pre-heating : 150°C, 1Min.					
		with new solder coating.	Solder Composition : Sn/Pb = 63/37					
			Solder Temperature : 230 ± 5°C					
			Immersion Time : 4 ± I Sec.					

## I-2 ENVIRONMENTAL PERFORMANCE

NO.	ITEM	SPECIFICATION	TEST CONDITIONS						
I-2-I	Temperature Shock	Appearance : No Damage	10 Cycles (Air	10 Cycles (Air to Air) 1 Cycles shall Consist of :					
		L Change : within ±10%	30Min. Exposur	e to -55°C	°C				
		L Change : within ±30%	30Min. Exposure to 125°C						
		RDC : within Specification	15Sec. Max. Transition between Temperatures						
			Measured after	Exposure in the Room Condition	on for 24Hrs.				
1-2-2	Temperature Cycle	—	One Cycle						
			Step Temperature (°C		Time (Min.)				
			I	-25 ± 3	30				
			2	25 ± 2	3				
			3	85 ± 3	30				
			4	25 ± 2	3				
			Total : 100 Cycl	es					
			Measured after Exposure in the Room Condition for 24Hrs.						
1-2-3	Humidity Resistance	—	Temperature : 4	Temperature : 40 ± 2°C					
			Relative Humid	ity : 90 ~ 95%					
			Time : 1000Hrs.						
			Measured after	on for 24Hrs.					
1-2-4	High Temperature	—	Temperature : 85 ± 3°C						
	Resistance		Relative Humid	Relative Humidity : 20%					
			Applied Curren	Applied Current : Rated Current					
			Time : 1000Hrs.						
			Measured after	Exposure in the Room Condition	on for 24Hrs.				
1-2-5	Low Temperature	—	Temperature : -	25 ± 3°C					
	Resistance		Relative Humid	Relative Humidity : 0%					
			Time : 1000Hrs.						
			Measured after Exposure in the Room Condition for 24Hrs.						

#### **RECOMMEND SOLDERING CONDITIONS**



for:CL/ CLH/ SQV/ SMD power inductors/ SMD Chip Beads/ SMD Filters, Transformers, Current Sensors

for: lead solder \_\_\_\_\_ for: lead-free solder \_\_\_\_\_ Tu