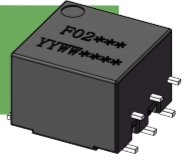


绕线小磁环变压器—ALTWR 系列

Wire Wound Small Magnetic Ring Transformer—ALTWR Series



工作温度

Operating Temp

- ◆ $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ (Including self-heating)

特征

Features

- ◆ 符合 RoHS 标准
- ◆ 高可靠性
- ◆ 高网络信号传输性能
- ◆ AEC-Q200 认证
- ◆ RoHS compliant
- ◆ High reliability
- ◆ High network transmission performance
- ◆ AEC-Q200 qualified

用途

Applications

- ◆ 汽车电池管理系统菊链式通信电路 (ALTWR-F/C 系列)
- ◆ 小功率电源用 (ALTWR-H 系列)
- ◆ 电池管理系统, 远程通信模块, 以太网通信接口 (ALTWR-G 系列)
- ◆ Daisy-Chain Communication Circuit of BMS (ALTWR-F/C Series)
- ◆ Small power supply (ALTWR-H Series)
- ◆ BMS, Telecommunication Module and Ethernet Communication Circuit (ALTWR-G Series)

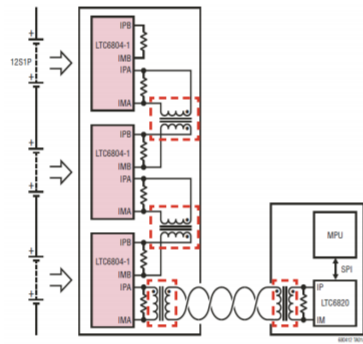
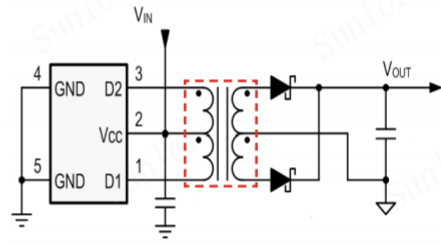


示意图: 电池管理系统菊链式通信电路
Diagrammatic Drawing:
Daisy-Chain Communication Circuit of BMS



应用示意图: 电源用
Diagrammatic Drawing: For Power Supply

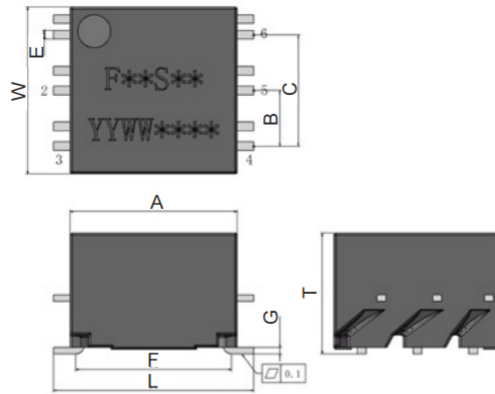
产品型号

Product Identification

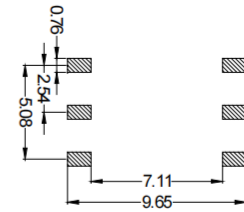
1	A	2	LT	3	W	4	R	5	F02	6	T	7	F	
1	产品类型 Product Type			2	分类 Type			3	结构 Structure					
	A	Automotive			LT	网络传输用 for Network Transmission Transformer				W	绕线 Wire			
4	特征类型 Feature Type			5									设计代码 Design Code	
	R	Type R											F02	
6													F11	
													F14	
													C18	
													H06	
6													H56	
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外观尺寸 Shape and Dimensions

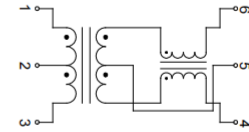
ALTWR-F02TF



推荐焊盘 Recommended Land Pattern



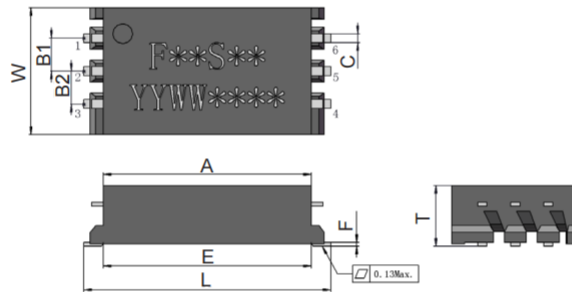
拓扑图 Topological Diagram



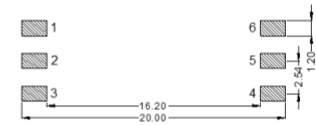
单位 Unit: mm

L _{Max.}	W	T _{Max.}	A _{Ref.}	B	C	D _{Ref.}	E _{Ref.}	F _{Ref.}
9.27	7.62±0.20	5.72	7.62	2.54±0.20	5.08±0.20	0.45	7.43	0.30

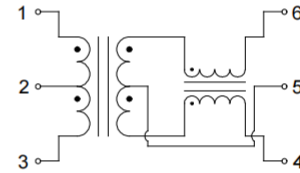
ALTWR-F11TF



推荐焊盘 Recommended Land Pattern



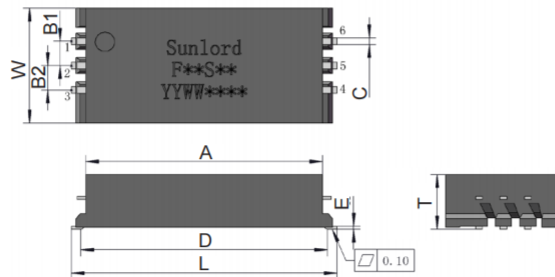
拓扑图 Topological Diagram



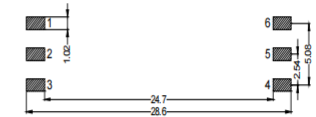
单位 Unit: mm

L _{Max.}	W _{Max.}	T _{Max.}	A _{Ref.}	B ₁	B ₂	C	D _{Ref.}	E _{Ref.}
19.50	9.95	5.00	16.00	2.54±0.20	2.54±0.20	0.70±0.20	16.60	0.35

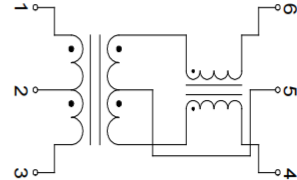
ALTWR-F14TF



推荐焊盘 Recommended Land Pattern



拓扑图 Topological Diagram

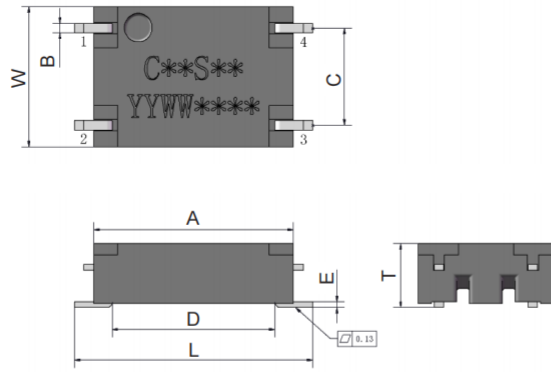


单位 Unit: mm

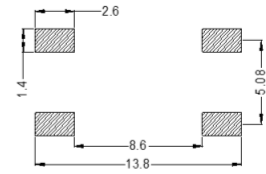
L	W	T _{Max.}	A _{Ref.}	B ₁	B ₂	C	D _{Ref.}	E _{Ref.}
27.85±0.50	12.00±0.20	6.00	24.75	2.54±0.20	2.54±0.20	0.50±0.20	25.75	0.30

外观尺寸 Shape and Dimensions

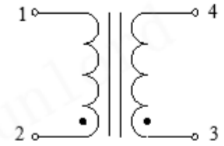
ALTW-R-C18TF



推荐焊盘 Recommended Land Pattern



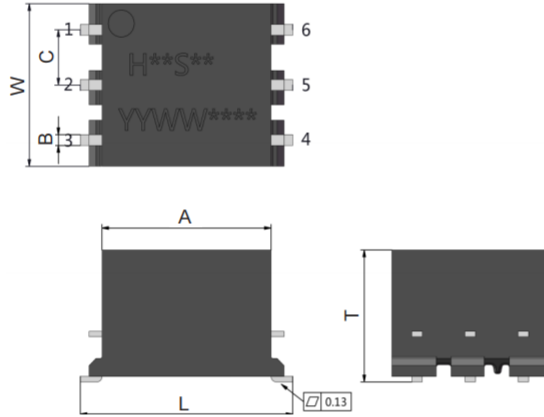
拓扑图 Topological Diagram



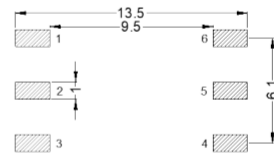
单位 Unit: mm

L _{Max.}	W _{Max.}	T _{Max.}	A _{Ref.}	B _{Ref.}	C	D _{Ref.}	E _{Ref.}
12.8±0.50	7.50	3.50	10.8	0.50	5.08	9.0	0.30

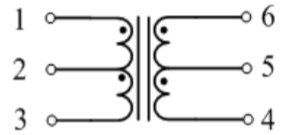
ALTW-R-H06TF



推荐焊盘 Recommended Land Pattern



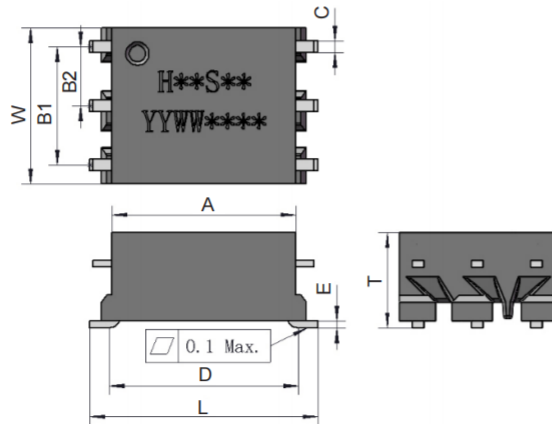
拓扑图 Topological Diagram



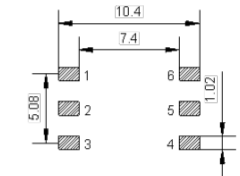
单位 Unit: mm

L _{Max.}	W _{Max.}	T _{Max.}	A _{Ref.}	B _{Ref.}	C
12.50	9.20	7.60	9.70	0.60	3.05±0.15

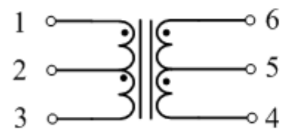
ALTW-R-H56TF



推荐焊盘 Recommended Land Pattern



拓扑图 Topological Diagram

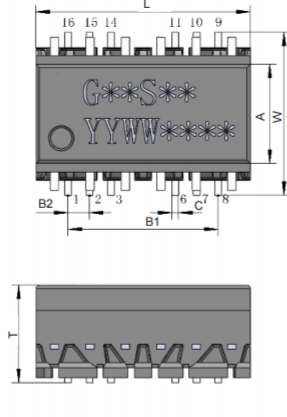


单位 Unit: mm

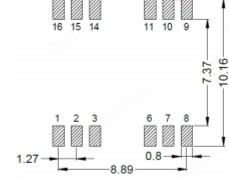
L	W	T _{Max.}	A _{Ref.}	B ₁	B ₂	C	D _{Ref.}	E _{Ref.}
9.80±0.30	6.70±0.25	4.20	7.90	5.08±0.13	2.54±0.13	0.50±0.13	8.20	0.30

外观尺寸 Shape and Dimensions

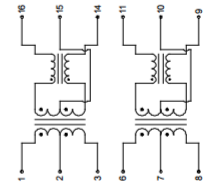
ALTWR-G01TF



推荐焊盘 Recommended Land Pattern



拓扑图 Topological Diagram



单位 Unit: mm

L	W	T	A _{Ref.}	B ₁	B ₂	C	D _{Ref.}	E _{Ref.}	F _{Ref.}
12.70±0.20	9.70±0.30	5.80±0.30	5.90	8.89±0.13	1.27±0.13	0.40±0.13	7.60	0.30	0.30

规格特性 Specifications

ALTWR-F02TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P3) , (P6-P4)	170 Min. , 350 Max.	uH	100kHz, 0.1V
漏感量 Lk	(P1-P3) @ (P6-P4) Shorted	0.50 Max.	uH	100kHz, 0.1V
直流电阻 DCR	(P1-P3)	0.45 Max.	Ω	AT 25±5°C
	(P6-P4)	0.80 Max.		
圈比 Turn Ratio	(P1-P3) : (P6-P4)	1:1±2%	/	100kHz; 0.1V
初次级耐压 ▼Hi-Pot	Pri to Sec (P1-P2-P3 to P4-P5-P6)	No breakdown	V	3000Vac/4300Vdc 1mA/50Hz/60Sec
插入损耗 Insertion Loss	P1,P3→P6,P4	0.30 Max.	dB	4MHz
回波损耗 Return Loss	P1,P3→P6,P4	20 Min.	dB	4MHz
差模对共模抑制 Differential To Common Mode Rejection	P1,P3→P6,P4	35 Min.	dB	1~10MHz
		20 Min.		10~1000MHz

ALTWR-F11TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P3) , (P6-P4)	350 Min.	uH	100kHz, 100mV, DC Bias 8mA
漏感量 Lk	(P1-P3) with (P6-P4) shorted	0.40 Max.	uH	100kHz, 100mV
直流电阻 DCR	(P1-P3)	0.90 Max.	Ω	AT 25±5°C
	(P6-P4)	1.40 Max.		
圈比 Turn Ratio	(P1-P3) : (P6-P4)	1:1±2%	/	100kHz, 100mV
初次级耐压 ▼Hi-Pot	Pri to Sec (P1-P2-P3 to P4-P5-P6)	No breakdown	V	2900Vac 1mA/50Hz/60Sec
插入损耗 Insertion Loss	P1,P3→P6,P4	1.0 Max.	dB	1~50MHz
		2.0 Max.	dB	50~100MHz
回波损耗 Return Loss	P1,P3→P6,P4	16 Min.	dB	30MHz
		12 Min.	dB	60MHz
		9 Min.	dB	80MHz
共模抑制比 Common Mode Rejection Ratio	P1,P3→P6,P4	45 Typ.	dB	30MHz
		40 Typ.	dB	50MHz
		35 Typ.	dB	100MHz

规格特性

Specifications

ALTWR-F14TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P3)or(P6-P4)	150 Min. ,450 Max.	uH	100kHz,0.1 V
漏感量 Lk	(P1-P3)@ (P6-P4) shorted	0.70 Max.	uH	100kHz,0.1 V
直流电阻 DCR	(P1-P3)	0.80 Max.	Ω	AT 25±5°C
	(P6-P4)	1.00 Max.		
Cww 匝间电容	(P1-P2-P3 to P4-P5-P6)	20 Max.	pF	100kHz,0.1 V
圈比 Turn Ratio	(P1-P3) :(P6-P4)	1:1±2%	/	100kHz,0.1 V
初次级耐压 ▼Hi-Pot	Pri to Sec (P1-P2-P3 to P4-P5-P6)	No breakdown	V	6000Vdc 1mA/60Sec
插入损耗 Insertion Loss	P1,P3→P6,P4	0.50 Max.	dB	4MHz
回波损耗 Return Loss	P1,P3→P6,P4	20 Min.	dB	4MHz
共模抑制比 Common Mode Rejection Ratio	P1,P3→P6,P4	35 Min.	dB	1~10MHz
		20 Min.	dB	10~100MHz

ALTWR-C18TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P2)or(P4-P3)	350 Min.	uH	100kHz, 0.1 V
漏感量 Lk	(P1-P2)with(P4-P3) shorted	1.0 Max.	uH	100kHz, 0.1 V
电容 ▽Cp	(P1-P2) to (P4-P3)	20 Max.	pF	100kHz, 1 V
直流电阻 DCR	(P1-P2)	0.55 Max.	Ω	AT 25±5°C
	(P4-P3)	0.55 Max.		
圈比 Turn Ratio	(P1-P2) :(P4-P3)	1:1±2%	/	100kHz, 0.1 V
初次级耐压 ▼Hi-Pot	Pri to Sec (P1-P2 to P4-P3)	No breakdown	V	3000Vac 1mA/50Hz/60Sec

ALTWR-H06TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P3)	350±40%	uH	100kHz, 0.1 V
漏感量 Lk	(P1-P3)with(P6-P4) shorted	1.0 Max.	uH	100kHz, 0.1 V
电容 ▽Cp	(P1-P2-P3) to (P4-P5-P6)	2~10	pF	100kHz, 1 V
直流电阻 DCR	(P1-P3)	0.30 Max.	Ω	AT 25±5°C
	(P6-P4)	0.35 Max.		
圈比 Turn Ratio	(P1-P3) :(P6-P4)	3:4±5%	/	100kHz, 0.1 V
初次级耐压 ▼Hi-Pot	Pri to Sec (P1-P2-P3 to P4-P5-P6)	No breakdown	V	4000Vac/ 1mA/50Hz/60Sec

ALTWR-H56TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P3)	300 Min.	uH	100kHz, 0.1 V
漏感量 Lk	(P1-P3)with(P6-P4) shorted	1 Max.	uH	100kHz, 0.1 V
电容 ▽Cp	(P1-P2-P3) to (P4-P5-P6)	20 Max.	pF	100kHz, 1 V
直流电阻 DCR	(P1-P3)	1 Max.	Ω	AT 25±5°C
	(P6-P4)	1.1 Max.		
圈比 Turn Ratio	(P1-P3) :(P6-P4)	1:1.1±5%	/	100kHz, 0.1 V
初次级耐压 ▼Hi-Pot	Pri to Sec (P1-P2-P3 to P4-P5-P6)	No breakdown	V	2500Vac/ 1mA/50Hz/60Sec

规格特性 Specifications

ALTWR-G01TF

项目 ITEMS	测试端口 TEST TERMINAL	测试规格 TEST SPECIFICATION	单位 UNITS	测试条件 TEST CONDITION
电感量 ▽Ls	(P1-P3) , (P6-P8) , (P11-P9) , (P16-P14)	350 Min.	uH	100kHz, 0.1 V @ 8mA DC Bias
漏感量 Lk	(P1-P3)with(P16-P14) shorted (P6-P8)with(P11-P9) shorted	0.8 Max.	uH	100kHz, 0.1 V
直流电阻 DCR	(P1-P3) , (P6-P8)	0.80 Max.	Ω	AT 25±5°C
	(P11-P9) , (P16-P14)	1.20 Max.		
圈比 Turn Ratio	(P1-P3) : (P16-P14), (P6-P8) : (P11-P9)	1:1±2%	/	100kHz, 0.1 V
初次级耐压 ▼Hi-Pot	Pri to Sec (P1~P8 to P16~P9)	No breakdown	V	1500Vac/ 1mA/50Hz/60Sec
插入损耗 Insertion Loss (Sdd21)	(P1-P3) → (P16-P14), (P6-P8) → (P11-P9)	0.4 Max.	dB	1~10MHz
		1.5 Max.	dB	10~100MHz
		3.0 Max.	dB	125MHz
回波损耗 Return Loss (sdd11)	(P1-P3) → (P16-P14), (P6-P8) → (P11-P9)	15 Min.	dB	1~30MHz
		12 Min.	dB	30~60MHz
		9 Min.	dB	60~80MHz
串扰 Crosstalk (sdd21)	(P1-P3) → (P11-P9), (P6-P8) → (P16-P14)	45 Min.	dB	30MHz
		40 Min.	dB	50MHz
		35 Min.	dB	100MHz
差模对共模抑制 Differential To Common Mode Rejection (scd21)	(P1-P3) → (P16-P14), (P6-P8) → (P11-P9)	35 Min.	dB	30MHz
		30 Min.	dB	50MHz
		25 Min.	dB	100MHz

注：“▼”是关键特性，“▽”是重要特性。

Note:“▼”is critical character, “▽”is significant character.