

TL 系列 SERIES



- 全焊结构，确保可靠的电气接触性
All-welded construction ensures reliable electrical contact
- 高可靠性及高耐纹波电流能力
High reliability and high ripple current capability.
- 保证 85℃、20000 小时寿命（叠加纹波电流）
Endurance with ripple current: 20000 hours at 85℃.
- 应用：列车、机械设备和大型控制设备
Applications: Train, Mechanical equipment and Large control equipment



◆规格表 SPECIFICATIONS

项目 Items	特性 Characteristics								
工作温度范围 Operating Temperature Range	-40~+85℃								
额定工作电压范围 Rated Working Voltage Range	350~450V								
静电容量范围 Capacitance Range	1000~12000 µF								
静电容量允许偏差 Capacitance Tolerance	±20% (20℃, 120Hz)								
损耗角正切值 Dissipation Factor (MAX) 20℃, 120Hz	<table border="1"> <tr> <td>U_R(V)</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>tanδ</td> <td colspan="3">0.15</td> </tr> </table>	U _R (V)	350	400	450	tanδ	0.15		
U _R (V)	350	400	450						
tanδ	0.15								
漏电流 Leakage Current (MAX)	$I = 0.01C_R U_R$ 或 5mA 取小者 (20℃, 施加额定电压 5 分钟后) $I = 0.01C_R U_R$ or 5mA whichever is minimum. (at 20℃, After 5 minutes application of rated voltage) I=漏电流 (µA) U _R =额定电压 (V) C _R =静电容量 (µF) Leakage Current Rated Voltage Rated Capacitance								

	使用寿命 Useful Life	负荷寿命 Load Life	耐久性特性 Endurance Test	高温无负荷特性 Shelf Life
产品寿命 Life Time	25000h	>250000h	20000h	1000h
漏电流 Leakage Current	≤规定值 ≤Specified value	≤规定值 ≤Specified value	≤规定值 ≤Specified value	≤规定值 ≤Specified value
损耗角正切值变化率 tanδ Change	≤规定值的 300% ≤300% of specified value	≤规定值的 200% ≤200% of specified value	≤规定值的 175% ≤175% of specified value	≤规定值的 150% ≤150% of specified value
静电容量变化率 Capacitance Change	初始值±30%以内 Within ±30% of initial value	初始值±20%以内 Within ±20% of initial value	初始值±15%以内 Within ±15% of initial value	初始值±15%以内 Within ±15% of initial value
施加条件 Condition 施加电压 Applied Voltage 施加纹波电流 Applied Ripple Current 环境温度 Applied Temperature 失效等级 Failure Rate Level	U _R I _R 85℃ ≤1% Failure rate	U _R 1.2×I _R 40℃ ≤1% Failure rate	U _R I _R 85℃ 0%	U _R =0 I _R =0 85℃ 0%

◆尺寸图 Dimensions

- 常用端子型式代码：Terminal Code

L-Type: Small terminal M5 thread
S-Type: Large terminal M6 thread

Ring Clip: T (Φ35 Standard) Ring Clip: S (Φ51~Φ89 Standard)

Ring Clip Dimensions:

ΦD	A	B	a	b
51	73.0	63.5	4.5	7
64	85.1	76.2	4.5	7
76	98.4	88.9	4.5	7
89	111.1	101.6	4.5	7

产品详细尺寸和公差请参照 P130
For detailed dimension & tolerance, please refer to P130

- 记载以外的端子形状，请另行咨询。Please consult to us for the terminal type not displayed in content.

◆产品编码体系 PART NUMBER SYSTEM

●例如：Example TL 350V10000µF Φ89×157 ±20%

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
T	L	H	1	0	3	M	8	9	1	5	7	S	V	A

客户特殊要求 special requirement
套管材质代码 Sleeve Code
端子型式代码 Lead Form Code
高度代码 (例: 157→157) The height of the code (mm.)
直径代码 (例: 76→76, 89→89) Diameter code (mm.)
容差代码 (例: ±20%→M) Capacitance Tolerance code
容量代码 (例: 8200→822, 12000→123) Capacitance Code (µF)
电压代码 (例: 350V→H, 400V→G) Rated Voltage Code (V)
产品系列代码 (例: TL→TL) Series Code

◆纹波电流修正系数 Rated Ripple Current Multiplies

●频率修正系数 Frequency coefficient

频率 Frequency (Hz)	50(60)	100(120)	300	1k	≥10k
系数 Coefficient	0.80	1.00	1.10	1.30	1.40

●温度修正系数 Temperature coefficient

温度 Temperature (℃)	+40	+60	+85
系数 Coefficient	1.89	1.67	1.00

◆ 产品一览表 Standard Ratings

WV _{DC} (Surge Voltage) (V)	Cap (μ F)	Size D×L (mm)	tan δ 20°C 120Hz	ESR _{typ} 20°C 120Hz m Ω	Ripple Current 85°C 120Hz (Arms)	Catalog Part Number
350 (400)	1000	51×80	0.15	69.0	3.9	TLH102M51080□VA
	1200	51×80	0.15	65.0	4.2	TLH122M51080□VA
	1500	51×95	0.15	53.1	5.2	TLH152M51095□VA
	1800	51×95	0.15	43.0	5.7	TLH182M51095□VA
	2200	51×130	0.15	30.0	7.1	TLH222M51130□VA
	2700	64×95	0.15	27.0	7.7	TLH272M64095□VA
	3300	64×115	0.15	23.0	11.1	TLH332M64115□VA
	3900	64×130	0.15	19.0	12.8	TLH392M64130□VA
	4700	76×115	0.15	16.0	14.7	TLH472M76115□VA
	5600	76×130	0.15	14.0	16.9	TLH562M76130□VA
	6800	76×155	0.15	12.7	20.2	TLH682M76155□VA
	8200	89×157	0.15	10.5	23.1	TLH822M89157□VA
10000	89×157	0.15	9.3	26.6	TLH103M89157□VA	
12000	89×195	0.15	7.7	32.0	TLH123M89195□VA	
400 (450)	1000	51×80	0.15	70.0	4.0	TLG102M51080□VA
	1200	51×95	0.15	60.8	4.6	TLG122M51095□VA
	1500	51×115	0.15	48.7	5.6	TLG152M51115□VA
	1800	51×130	0.15	40.5	6.4	TLG182M51130□VA
	2200	64×95	0.15	33.2	7.3	TLG222M64095□VA
	2700	64×115	0.15	27.0	10.1	TLG272M64115□VA

WV _{DC} (Surge Voltage) (V)	Cap (μ F)	Size D×L (mm)	tan δ 20°C 120Hz	ESR _{typ} 20°C 120Hz m Ω	Ripple Current 85°C 120Hz (Arms)	Catalog Part Number
400 (450)	3300	64×130	0.15	22.1	11.7	TLG332M64130□VA
	3900	76×115	0.15	18.7	14.7	TLG392M76115□VA
	4700	76×130	0.15	16.9	15.5	TLG472M76130□VA
	5600	76×155	0.15	14.2	18.3	TLG562M76155□VA
	6800	89×157	0.15	11.7	21.0	TLG682M89157□VA
	8200	89×157	0.15	9.7	24.1	TLG822M89157□VA
	10000	89×195	0.15	8.6	29.1	TLG103M89195□VA
450 (500)	1000	51×95	0.15	69.0	4.2	TLE102M51095□VA
	1200	51×115	0.15	57.5	5.0	TLE122M51115□VA
	1500	51×130	0.15	46.0	5.9	TLE152M51130□VA
	1800	64×95	0.15	38.3	6.5	TLE182M64095□VA
	2200	64×115	0.15	31.4	9.1	TLE222M64115□VA
	2700	64×130	0.15	25.6	10.6	TLE272M64130□VA
	3300	76×130	0.15	21.3	13.0	TLE332M76130□VA
	3900	76×155	0.15	18.4	14.4	TLE392M76155□VA
	4700	76×155	0.15	16.9	16.7	TLE472M76155□VA
	5600	89×157	0.15	14.2	19.9	TLE562M89157□VA
	6800	89×195	0.15	12.7	23.0	TLE682M89195□VA
	8200	89×195	0.15	10.5	26.4	TLE822M89195□VA

*产品编码中□内为产品端子引出型式代码
*□Enter the appropriate terminal code

*记载之外的体积，请另行咨询。
*Please ask for advice for other sizes.

*铝电解电容器由于承受纹波电流而发热，随着温升而发生性能劣化。请在使用中降低产品承受的纹波电流。
*Aluminum electrolytic capacitor will emit heat when ripple current is applied, the performance will deteriorate when temp. rises. Please reduce the ripple current when using capacitor.