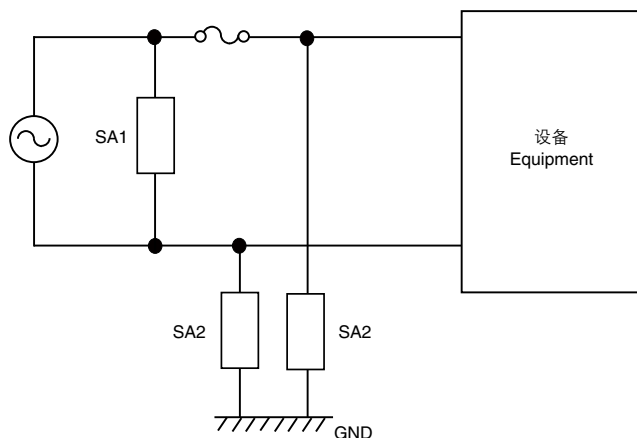


1) 需要进行 AC 耐电压试验的电源

Power supply requiring AC withstanding

应用例：SW 电源、变频器电源、OA 设备及家用电器的电源

Application: SW power supply, inverter power supply, power supply of office and home appliance



注) 在 IEC62368-1 中, 作为设备的一次电路的浪涌对策, 要求满足一定条件的 MOV^{※1)} (压敏电阻) 和 GDT^{※2)} 气体放电管串联连接。
IEC62368-1 requires series usage of MOV^{※1)} and GDT^{※2)} for surge protection in the primary circuits of equipment.

1) The MOV complies with the requirements of Annex G.8.

2) The GDT complies with :

*the electric strength test for BASIC INSULATION ; and

*the external Clearance and Creepage distance requirements for basic insulation.

■ 推荐部品 Recommended parts

		AC125V	AC250V
正常模式(线之间) SA1 Normal mode(Between L1 and L2)		DSANR-1 DSAZR1-301L	DSANR-3 DSAZR2-501M
共用模式 SA2 (线~GND之间) Common mode (Between L1/L2 and GND)	无要求 Test is not required	DSANR-1, DSAZR1-301L	DSANR-3, DSAZR2-501M
	AC1,000V-1min. AC1,200V-3sec.	DSANR-4, DSAZR1-242M CDA70-272M+压敏电阻 ¹⁾ (MOV) ¹⁾ DA53-272M+压敏电阻 ¹⁾ (MOV) ¹⁾ DSA-242M+压敏电阻 ¹⁾ (MOV) ¹⁾ DE37-272M+压敏电阻 ¹⁾ (MOV) ¹⁾	DSAZR2-242M CDA70-272M+压敏电阻 ²⁾ (MOV) ²⁾ DA53-272M+压敏电阻 ²⁾ (MOV) ²⁾ DSA-242M+压敏电阻 ²⁾ (MOV) ²⁾ DE37-272M+压敏电阻 ²⁾ (MOV) ²⁾
	AC1,500V-1min.	DSANR-5, DSAZR1-302M CDA70-302M+压敏电阻 ¹⁾ (MOV) ¹⁾ DA53-302M+压敏电阻 ¹⁾ (MOV) ¹⁾ DSA-302M+压敏电阻 ¹⁾ (MOV) ¹⁾ DE37-302M+压敏电阻 ¹⁾ (MOV) ¹⁾	DSANR-5, DSAZR2-302M CDA70-302M+压敏电阻 ²⁾ (MOV) ²⁾ DA53-302M+压敏电阻 ²⁾ (MOV) ²⁾ DSA-302M+压敏电阻 ²⁾ (MOV) ²⁾ DE37-302M+压敏电阻 ²⁾ (MOV) ²⁾
	AC1,800V-3sec.	DSANR-6, DSAZR1-362M CDA70-362M+压敏电阻 ¹⁾ (MOV) ¹⁾ DA53-362M+压敏电阻 ¹⁾ (MOV) ¹⁾ DSA-362M+压敏电阻 ¹⁾ (MOV) ¹⁾ DE37-362M+压敏电阻 ¹⁾ (MOV) ¹⁾	DSANR-6A, DSAZR2-362M CDA70-362M+压敏电阻 ²⁾ (MOV) ²⁾ DA53-362M+压敏电阻 ²⁾ (MOV) ²⁾ DSA-362M+压敏电阻 ²⁾ (MOV) ²⁾ DE37-362M+压敏电阻 ²⁾ (MOV) ²⁾
	AC2,000V-1min.	DSANR-10B, DSAZR1-452M DSA-402M+压敏电阻 ¹⁾ (MOV) ¹⁾ DE37-452M+压敏电阻 ¹⁾ (MOV) ¹⁾	DSANR-10B, DSAZR2-452M DSA-402M+压敏电阻 ²⁾ (MOV) ²⁾ DE37-452M+压敏电阻 ²⁾ (MOV) ²⁾

压敏电阻¹⁾: 压敏电阻电压 220V 以上 (UL 认定条件为 270V 以上)压敏电阻²⁾: 压敏电阻电压 470V 以上

* 表中的 + 表示放电管和压敏电阻的串联连接。

MOV¹⁾: Varistor voltage: More than 220V (UL recognized: More than 270V)MOV²⁾: Varistor voltage: More than 470V

"+" : electrically connected series by gas discharge tube and varistor

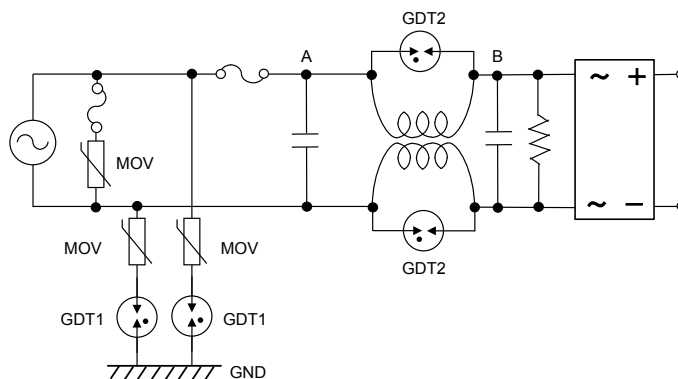
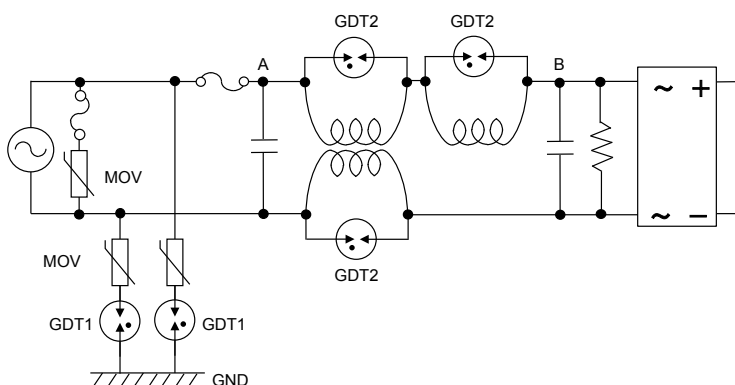
2) 共振措施

如右图浪涌侵入电源线, 电源线与接地间的浪涌措施电路(A点)反应时, 其残余电压会传至后半部分。因滤波器的LC共振, 残余电压增幅并有可能破坏后半部分的电路。建议在共模扼制线圈(GDT2、GDT3)的前后安装浪涌吸收器以保持电位均衡。

In case surge absorber located between power line to ground; point A in figure, reacts against the surge, residual voltage is transmitted to the latter part of the circuit. Some part of the circuit is destroyed because of amplified residual voltage by LC resonance of a noise filter and/or a coil. Potential equalization before and behind the common mode coil by a surge absorber; GDT2, is recommended as a measure.

Carrying out potential equalization between the terminals of a common mode coil and the both ends of a coil with a surge absorber (GDT2, GDT3) is recommended.

Resonance measure

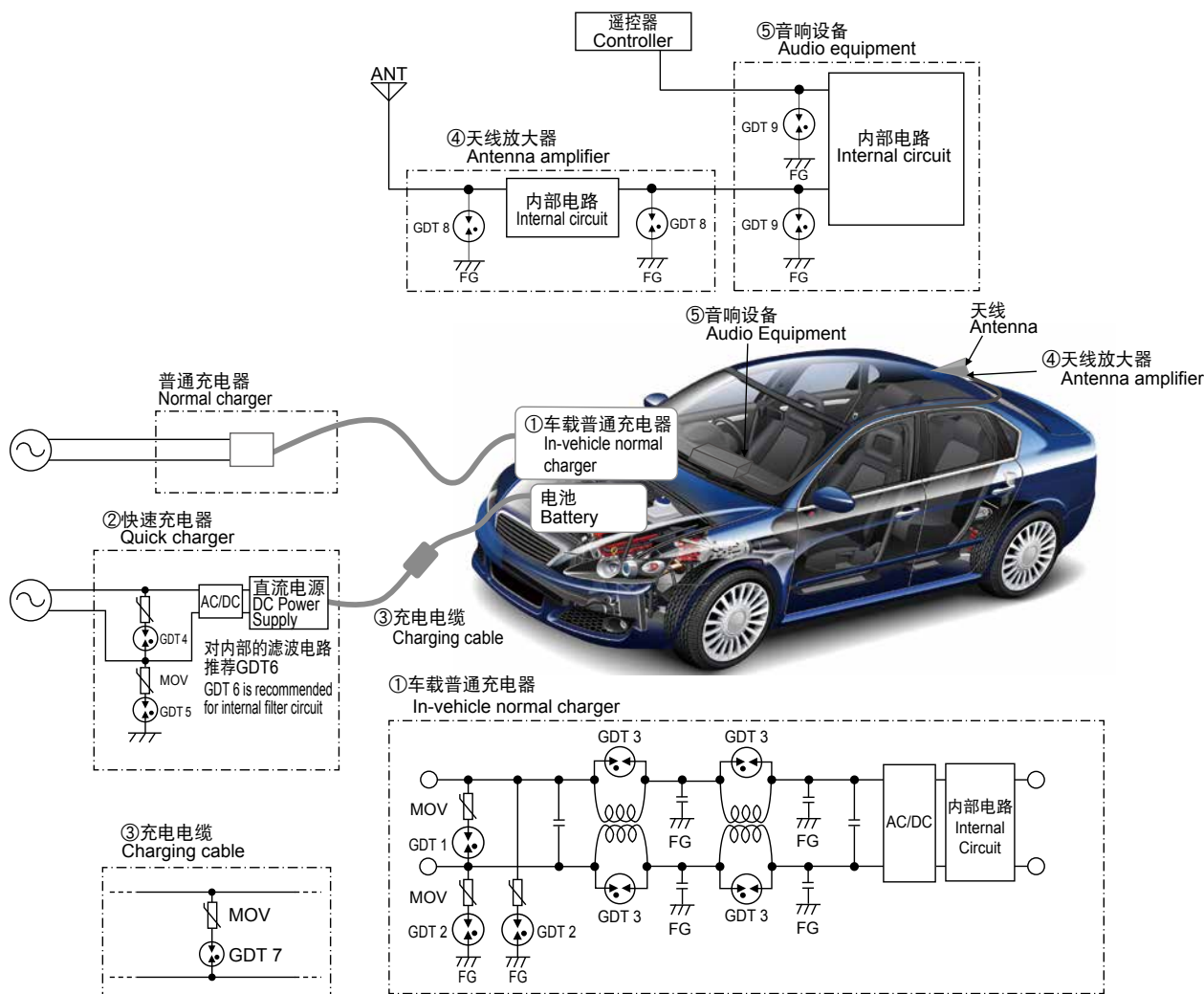
a) 对称电路
Symmetric circuitb) 非对称电路
Asymmetry circuit

■ 推荐部品 Recommended parts

	AC耐电压试验条件 AC Withstand Voltage Test	放电管1 GDT1	压敏电阻 MOV	放电管2 GDT2
~AC125V	Test is not required	DE37-401W	220V~270V (φ 10mm)	CSA70-301L CSA70-401L DE37-301L DE37-401W DE37-501M DSS-301L DSS-401M
	AC1,000V AC1,200V	CDA70-272M FA55-272		
~AC250V	Test is not required	DE37-501M	470V~680V (φ 10mm)	
	AC1,500V	CDA70-302M FA55-302		
	AC1,800V	CDA70-362M FA55-362		
	AC2,000V	FA55-402		

3) 车载

Automotive



■ 推荐部品 Recommended parts

① BMU

AC耐压 Withstanding voltage	放电管1 GDT1 Line to line	放电管2 GDT2 Line to GND	放电管3 GDT3 Resonance measure
—	DA53-501M	DA53-501M	DE37-301L
AC1,000V-1min. AC1,200V-3s		DA53-272M	
AC1,500V-1min.		DA53-302M	
AC1,800V-3s		DA53-362M	

② 快速充电器 (输入为AC200V时) Quick charger (In the case of input AC200 V)

AC耐压 Withstanding voltage	放电管4 GDT4 Line to line	放电管5 GDT5 Line to GND	放电管6 GDT6 Resonance measure
—	DA53-501M	DA53-501M	DE37-301L
AC1,500V-1min.		DA53-302M	
AC1,800V-3s		DA53-362M	

③ 充电电缆 (输入为DC500V时) Charging cable (In the case of input DC500V)

AC耐压 Withstanding voltage	放电管7 GDT7 Line to line
—	DA53-701M
导线型 Lead type	

④ 天线放大器 Antenna amplifier

⑤ 音响设备 Audio equipment

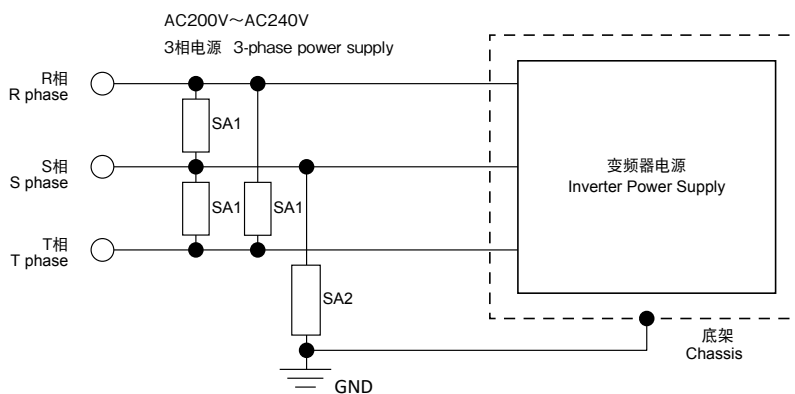
表面贴装型 SMD type	放电管8,9 GDT8,9
—	CSA30-141N, CSA20-141N
导线型 Lead type	DSP-141N, DSP-201M

4) 使用三相电源的设备

※ 在 (R、S、T 相)-GND 之间进行 AC 1500V 绝缘耐压试验的实施例。

※ Example of a dielectric withstanding voltage test carried out at a voltage of AC1,500V applied between the R-S-T phase and the ground.

Equipment using a three-phase power supply

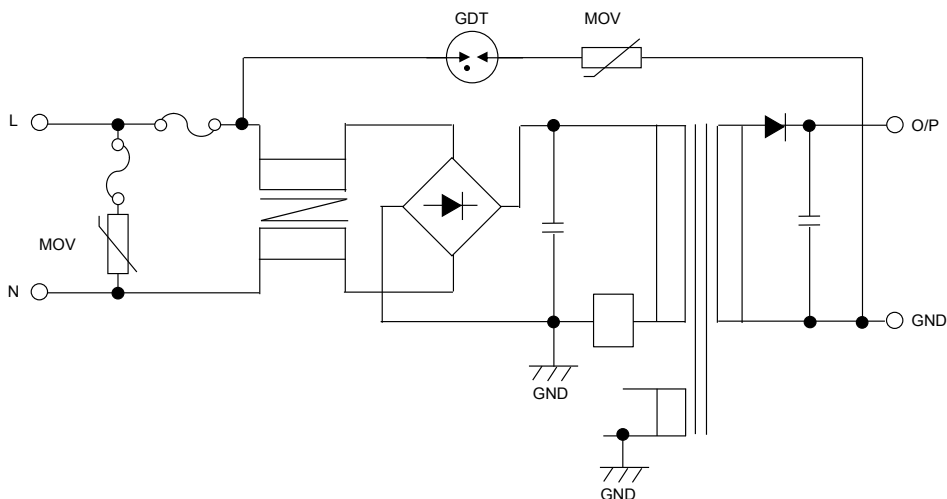


■ 推荐部品 Recommended parts

	复合品 Combination type	部品 Component type	
		放电管 GDT	压敏电阻 MOV
SA1	DSANR-3	DSA-501MA-05	220V~270V(φ 10)
SA2	DSANR-5	DSA-302MA-05	470V~680V(φ 10)

5) AC 适配器

AC/DC adapter

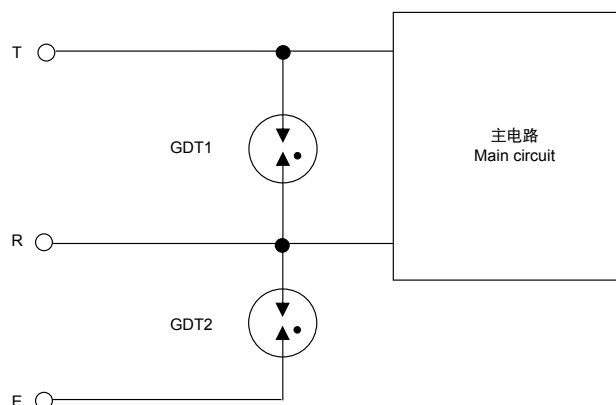


■ 推荐部品 Recommended parts

	放电管 GDT	压敏电阻 MOV
表面贴装型 SMD type	CDA70-272M	470V~
引线型 Lead type	FA55-272, DA53-272M	

6) 电话线路 / ADSL

Telephone line / ADSL

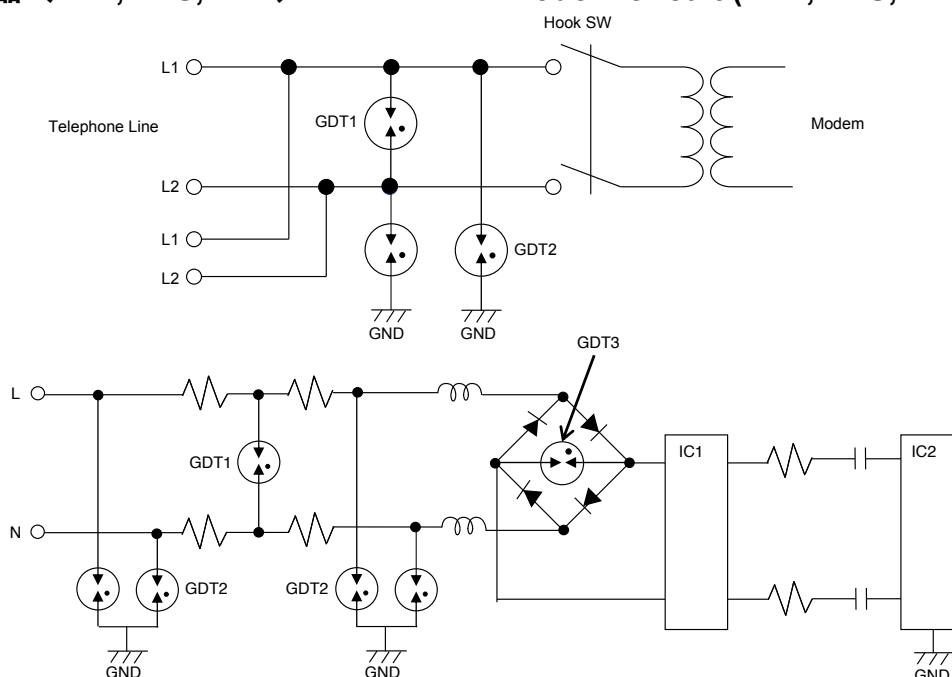


■推荐部品 Recommended parts

		表面贴装型 SMD type	引线型 Lead type
GDT1		CSA70-301L	DSS-301L
GDT2	AC耐电压试验:无 AC withstanding test: none	CSA70-301L	DSS-301L
	AC耐电压试验:AC1,500V-1min. AC withstanding test: AC1,500V-1min.	CDA70-302M	FA55-302 DA53-302M DSS-302M

7) 调制解调器 (FAX, KTS, PBX)

Modem circuit (FAX, KTS, PBX)

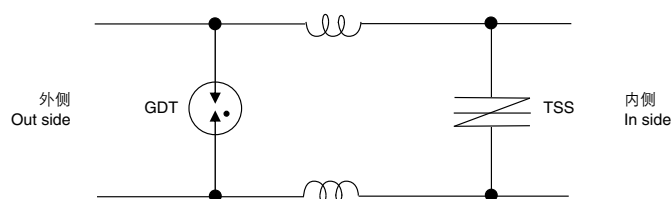


■推荐部品 Recommended parts

		表面贴装型 SMD type	引线型 Lead type
GDT1		CSA70-301L	DSS-301L
GDT2	AC耐电压实验无 AC withstanding:none	CSA70-301L	DSS-301L
	AC耐电压实验 AC1,000V-1min,AC1,200V-1min ACwithstandingtest AC1,000V-1min,AC1,200V-1min	CDA70-272M	DSS-272M
	AC耐电压实验 AC1,500V-1min ACwithstandingtest AC1,500V-1min	CDA70-302M	FA55-302 DSS-302M
GDT3		CSA70-301L	DSS-301L

8) 传感器及数据线

Sensor and data line

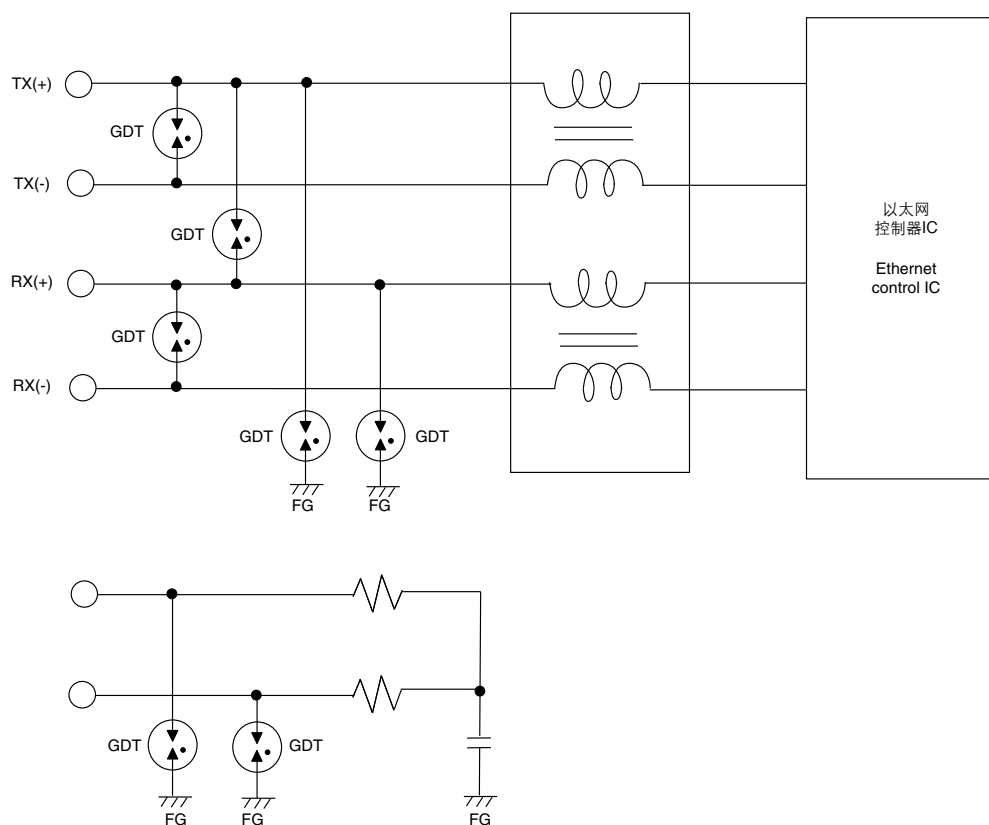


■ 推荐部品 Recommended parts

	放电管 GDT	晶闸管电涌抑制器 TSS
表面贴装型 SMD type	DSS-201M	硅型吸收器:30V Silicon type Absorber : 30V
引线型 Lead type		

9) 以太网 (100BASE-TX,1000BASE-T)

Ethernet (100BASE-TX / 1000BASE-T)

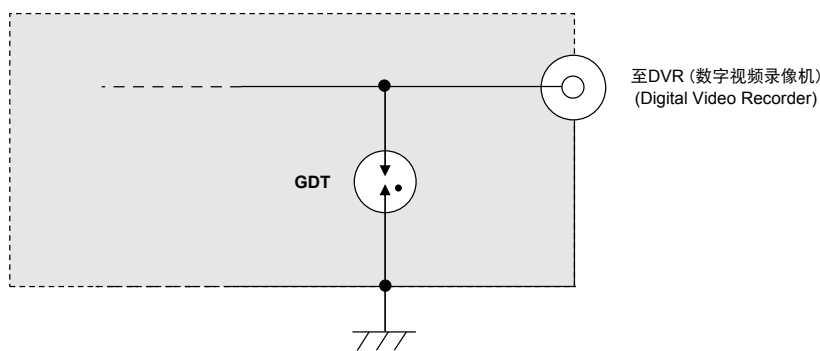


■ 推荐部品 Recommended parts

	放电管 GDT
表面贴装型 SMD type	CSA70-301L
引线型 Lead type	DE37-301L , DSS-301L

10) 同轴电缆 (监视器)

Coaxial cable(CCTV)

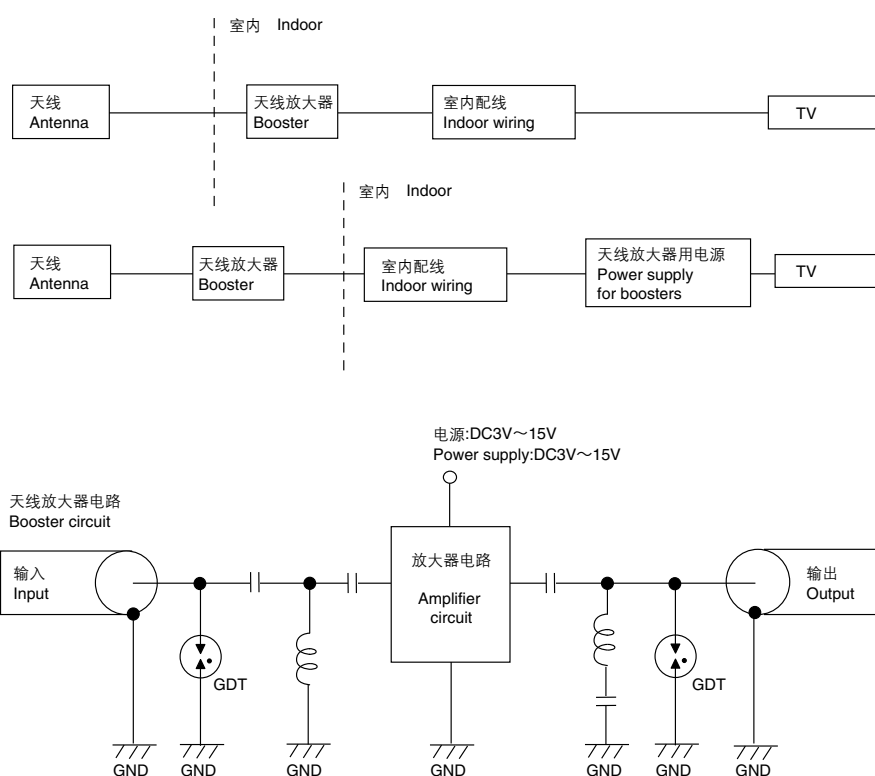


■推荐部品 Recommended parts

	放电管 GDT
表面贴装型 SMD type	CSA70-301L
引线型 Lead type	DE37-301L , DSS-301L

11) 天线放大器电路 (卫星广播用、一般电视设备用)

Booster circuit (Satellite broadcasting, Television)

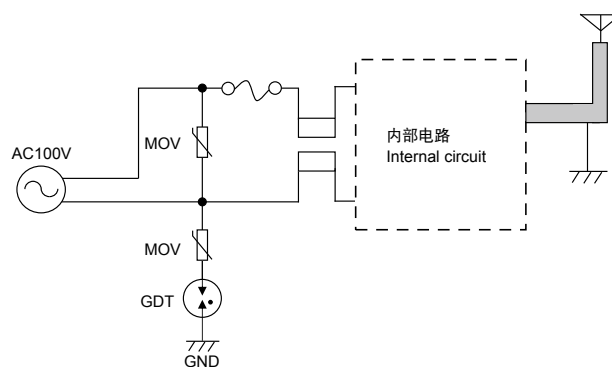


■推荐部品 Recommended parts

	放电管 GDT
表面贴装型 SMD type	CSA70-301L
引线型 Lead type	DE37-301L , DSS-301L

12) 电视天线电路

TV antenna circuit



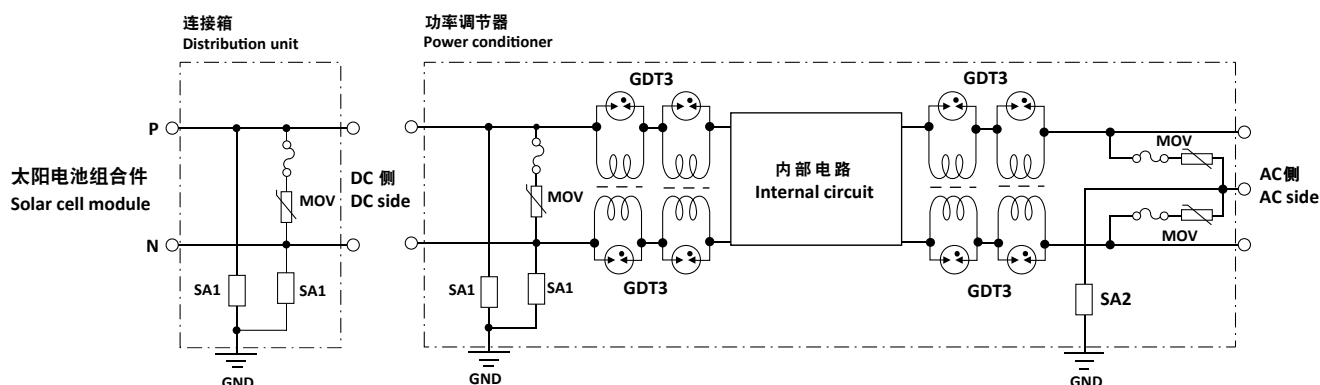
■ 推荐部品 Recommended parts

	放电管 GDT	压敏电阻 MOV
表面贴装型 SMD type	CDA70-272M	220V~270V(φ 10)
引线型 Lead type	DA53-272M FA55-272, DSS-272M	

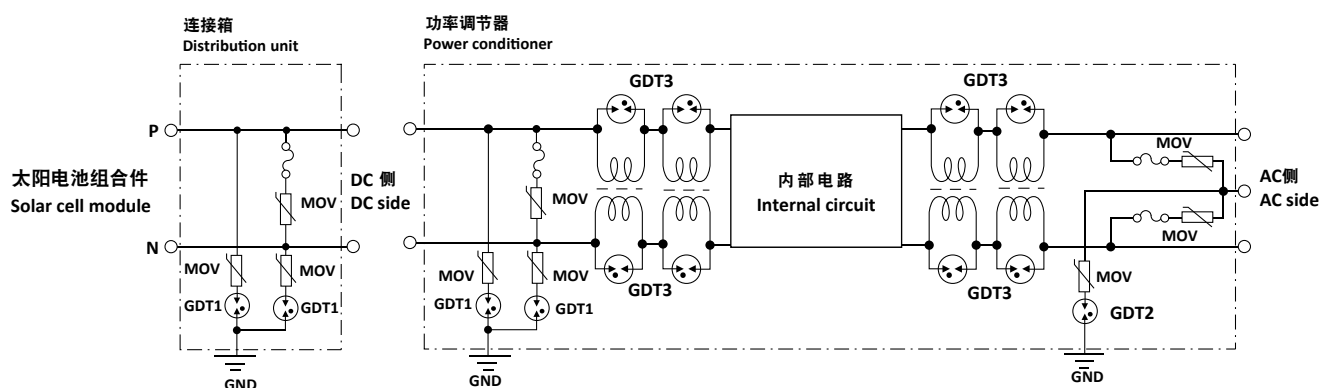
13) 太阳能发电系统

Photovoltaics system

【高信赖性系统用 High quality system】



【标准系统用 Standard system】

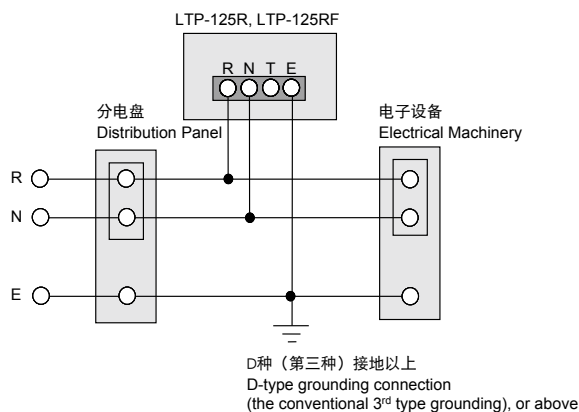


■ 推荐部品 Recommended parts

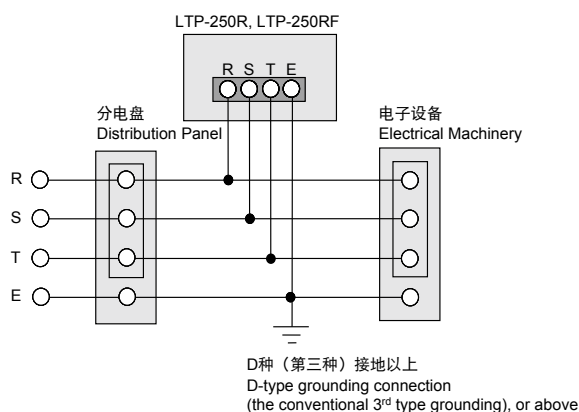
使用电压 Voc Open circuit voltage	高信赖性系统用 High quality system			标准系统用 Standard system		
	SA1	SA2	GDT3	GDT1	GDT2	GDT3
DC100V	DSAHR-1	AC125V: DSAHR-1 AC250V: DSAHR-3 AC400V: DSAHR-5	DA53-501M	DSA-301LA	AC125V: DE37-301L DSA-301LA AC250V: DE37-501M DSA-501MA AC400V: DE37-102M CDA70-102M DSA-102MA	DE37-301L CSA70-301L
DC250V	DSAHR-3			DSA-501MA		
DC450V	DSAHR-4			DSA-701MA DA53-701M CDA70-701M		
DC600V	DSAHR-5			DSA-102MA CDA70-102M		
DC750V	—			DSA-152MA		
DC1,000V	—			DSA-152MA		
DC1,500V	—			DSA-282MA DA53-272M CDA70-272M		
DC2,000V	—			DSA-302MA DA53-302M CDA70-302M		

14) 配电盘

单相: LTP-125 □
Single-phase: LTP-125 □

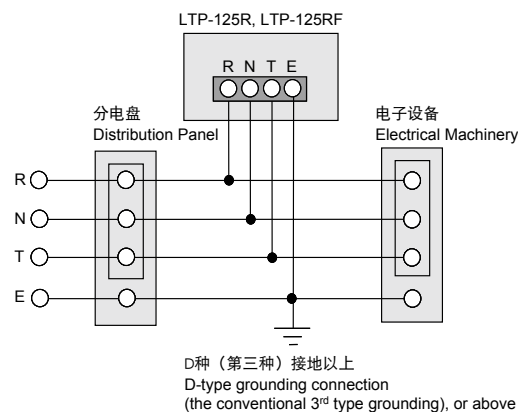


3相3线: LTP-250 □
Three-phase three wire:

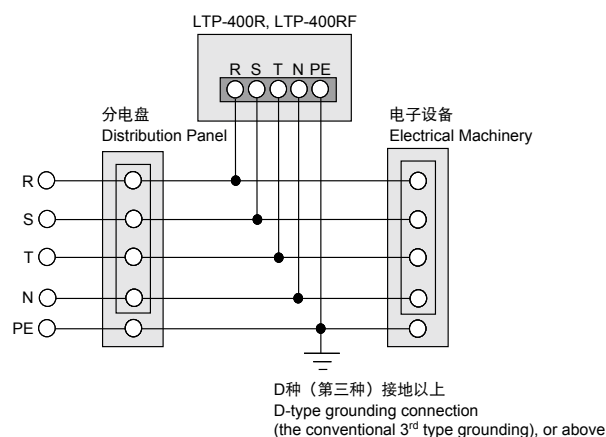


Switch board

单相3线: LTP-125 □
Single-phase three wire: LTP-125 □



3相4线: LTP-400 □
Three-phase four wire: LTP-400 □



使用注意事项

请务必在 D 种接地以上使用接地。请参照连接方法，使导线与端子紧密连接。

使用附带的绝缘塑料电线时，请切断多余电线，使其不成环，可在最短距离内布线。

本产品是非防水型。请勿使用高温和多湿的地方、阳光直射的地方、有粉尘和腐蚀性气体的地方等作为安装场所。

本产品适用于电源线的诱导雷电电涌，不适用于直击雷电电涌和通信线电涌等。

实施兆欧表测试时，请取下后再进行。

Precautions for use

Grounding to Earth needs to be class D or above. Connect lead securely to terminal and follow good connection guidelines.

Cut the supplied insulated vinyl electric wire as short as possible when installing.

This SPD isn't waterproof. Its location should protect it from high temperatures or humidity, direct sunlight, dust, or corrosive gas.

This unit protects from induced surges from power lines but doesn't protect from direct lightning surge and surge of communication line.

Remove from circuitry if performing a Megger test.