

Transistors for TV Display Video Output Use

Features *Excellent HF characteristic. *Small reverse transfer capacitance. *Complementary PNP and NPN types.
*Adoption of MBIT, FBST processes. *Highly resistant to dielectric breakdown.

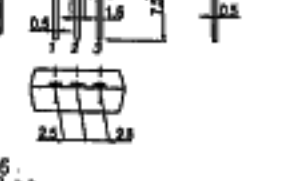
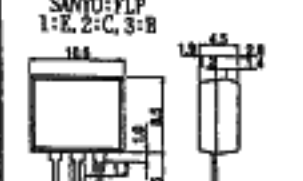
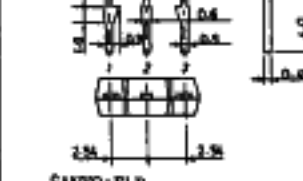
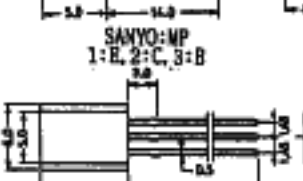
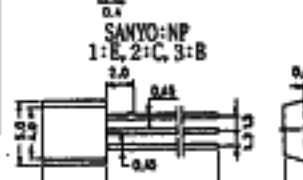
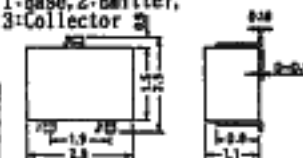
Case Outline (unit:mm)

SANYO-CP

1:Base, 2:Emitter, 3:Collector

General-Purpose Type (※: Tc=25°C) For PNP, (-) sign is omitted.

| Type No. | Package | Absolute Maximum Ratings/Ta=25°C | | | | Electrical Characteristics/Ta=25°C | | | | | |
|-----------------|----------|----------------------------------|-------------------------|-----------------------|-----------------------|------------------------------------|--|-----------------------------|-------------------------|------------------------|-----------------|
| | | V _{CEO} (V) | V _{CE0} (V) | I _C (A) | P _C (W) | f _T typ (MHz) | V _{CE} / I _C (V/mA) | C _{ob} typ (PF) | C _{re} (PF) | V _{CB} (V) | h _{FE} |
| 2SC2857 | NP | 180 | 180 | 50m | 0.5 | min50 | 30 / 10 | 4 | - | 10 | 40 ~ 320 |
| 2SA1689/2SC4449 | | 300 | 300 | 50m | 0.6 | 70 | 30 / 10 | 2.4/1.5 | 1.5/1 | 30 | 100 ~ 320 |
| 2SC5291 | FLP | 180 | 160 | 1.5 | 1.5 | 120 | 10 / 50 | 14 | - | 10 | 100 ~ 400 |
| 2SC4075 | TO-220ML | 300 | 300 | 0.2 | ※10 | min50 | 30 / 10 | 5.3 | - | 50 | 40 ~ 200 |



High-Definition CRT Display Use

| | | | | | | | | | | | |
|-----------------|----------|-----|-----|-----|-----|-----|---------|---------|---------|----|----------|
| 2SA1580/2SC4104 | CP | 70 | 60 | 50m | 0.2 | 700 | 10 / 10 | 1.7/1.3 | 1.3/1 | 10 | 60 ~ 270 |
| 2SA1433/2SC3504 | NP | 200 | 200 | 0.1 | 1.0 | 150 | 30 / 10 | 2.6/1.7 | 1.7/1.2 | 30 | 40 ~ 320 |
| 2SA1370/2SC3467 | | | | | | | | | | | |
| 2SA1371/2SC3468 | MNP | 300 | 300 | 0.1 | 1.0 | 150 | 30 / 10 | 3.1/2.6 | 2.3/1.8 | 30 | 40 ~ 320 |
| 2SA1710/2SC4490 | | | | | | | | | | | |
| 2SA1787/2SC4650 | FLP | 200 | 200 | 0.1 | 1.0 | 150 | 30 / 10 | 2.6/1.7 | 1.7/1.2 | 30 | 40 ~ 320 |
| 2SA1828/2SC4732 | | | | | | | | | | | |
| 2SA1829/2SC4733 | TO-126 | 300 | 300 | 0.1 | 1.3 | 150 | 30 / 10 | 3.1/2.6 | 2.3/1.8 | 30 | 60 ~ 320 |
| 2SC4884 | | | | | | | | | | | |
| 2SA1352/2SC3416 | TO-126 | 200 | 200 | 0.1 | 1.2 | 70 | 30 / 10 | 2.6/1.7 | 1.7/1.2 | 30 | 40 ~ 320 |
| 2SA1353/2SC3417 | | | | | | | | | | | |
| 2SA1380/2SC3502 | TO-126ML | 200 | 200 | 0.1 | 1.2 | 150 | 30 / 10 | 2.6/1.7 | 1.7/1.2 | 30 | 40 ~ 320 |
| 2SA1381/2SC3503 | | | | | | | | | | | |
| 2SA1478/2SC3788 | TO-126ML | 200 | 200 | 0.1 | 1.3 | 150 | 30 / 10 | 2.6/1.7 | 1.7/1.2 | 30 | 40 ~ 320 |
| 2SA1479/2SC3789 | | | | | | | | | | | |
| 2SA1480/2SC3790 | TO-220 | 300 | 300 | 0.1 | 1.5 | 150 | 30 / 10 | 3.1/2.6 | 2.3/1.8 | 30 | 40 ~ 320 |
| 2SC4217 | | | | | | | | | | | |
| 2SC4378 | TO-220 | 300 | 300 | 0.2 | 1.5 | 100 | 30 / 10 | 3.9 | 3.2 | 30 | 60 ~ 320 |
| 2SC4188 | | | | | | | | | | | |

Underlined type Nos. are before mass production.

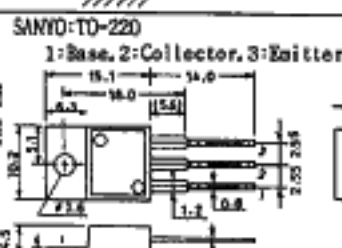
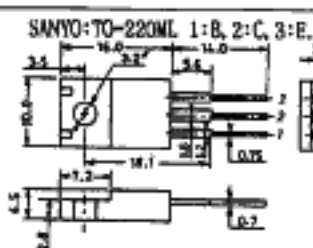
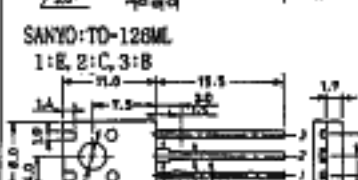
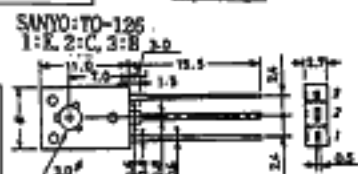
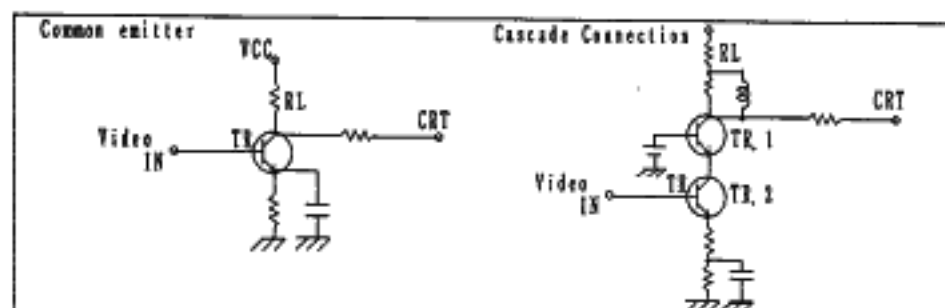
*Classification by h_{FE}

| | | | | |
|------|------|-------|-------|-------|
| 40 C | 80 D | 120 E | 180 F | 270 G |
| 60 H | 90 I | 135 J | 180 K | 270 L |

2SC5291(100~400)

| | | | |
|-------|-------|-------|-------|
| 100 R | 140 S | 200 T | 400 U |
|-------|-------|-------|-------|

*Equivalent Circuit for Video Output Use



SANYO-TO-220ML 1: E, 2: C, 3: E

These specifications are subject to change without notice.

SANYO Discrete Device Package Outlines(unit:mm)

Small-Signal Transistors

Large-Signal Transistors

Outlines name SSFP, SMCP, MCP, MCP4/5, CP, CP4/5/6, CPB3/5/6, PCP, PCP4/5, XP5/6, TP, TP-FA, MFP6, TSSOP8, SOP8, SPA, NP, MP, NMP, FLP, TO-126, TO-126ML, TO-126LP

ZP, SMP, SMP-PD, TO-220, TO-220C1, TO-220ML, TO-220FI (LS), TO-220MF, TO-3PB, TO-3PML, TO-3PBL, TO-3JWL

○ SANYO Transistor Package Name List.
Surface Mount Types

Lead Types ML:No insulating needed.

Notes

Nomenclature of house NOs.

The first several letters of the type Nos. of the FSS, FTD, FW, FTS, FC, FP, FB, series mean:

- 1'st F : Packages for complex type devices. (CP5/6, MCP4/5, PCP4/5, XP5/6, SOP8, TSSOP8)
- 2'nd S: SOP8 package
- 2'nd W: Double chips
- 2'nd T: TSSOP8 package
- 2'nd C: CP5/6 package
- 2'nd P: PCP4/5 package
- 2'nd X: XP5/6 package
- 2'nd D: Dual type
- 2'nd H: Ultra high freq. type
- 3'rd S: Single

| | |
|----------|----------------------------|
| SSFP | Super Small Flat Package |
| SMCP | Super Mini Chip Pack. |
| MCP | Mini Chip Pack. |
| MCP4/5 | Mini Chip Pack. (FH type) |
| CP | Chip Pack. |
| CP5/6 | Chip Pack. (FC type) |
| CPB3/5/6 | Chip Pack high-power |
| PCP | Power Chip Pack. |
| PCP4/5 | Power Chip Pack. (FP type) |
| NP | Chip Pack. (FK type) |
| TSSOP8 | (FTS, FTD type) |
| SOP8 | (FW, FSS type) |
| TP-FA | Tiny Package |
| SMP-PD | For large signal |
| ZP | For large signal |

| | |
|---------------|-----------------------------------|
| NMP | New MP |
| FLP | Full Mold Large Package |
| TO-126LP | Large-Power |
| TO-126ML | Nicaless |
| TO-220, 220ML | ML:Nicaless type |
| TO-220C1 | CI:Compact Isolation |
| TO-220FI (LS) | Full Isolation (leads short type) |
| TO-220MF | Mini Fin Short fin type. |
| TO-3PB, 3PML | Bushless, ML:Nicaless |
| TO-3PBL | Nicaless |
| TO-3PBL | Bushless Large |
| TO-3JWL | Jumbo Nicaless |

PB, BL: no insulating needed.

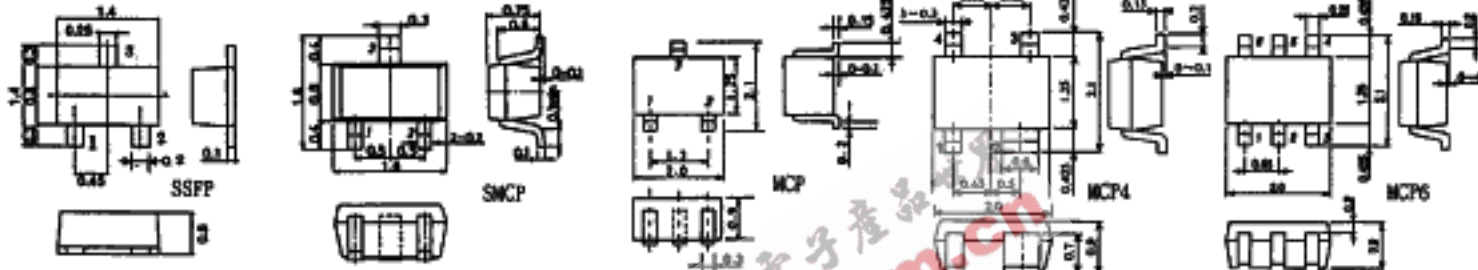
Type Nos. of 1XX or 1XXX are p-channel types.
Type Nos. of 2XX or 2XXX are N-channel types.
XP package is excluded.

*How to name CPB3/6 devices. Package name followed by 1, 2, 3 or 4 and then tow-digit consecutive Nos. Figures following the package names mean: 1:P-NP Tr, 2:NPN Tr, 3:P-ch MOSFET, 4:N-ch MOSFET.

○ Surface Mount Type Outlines(JEDEC and EIAJ name are in parentheses.)

Top View Pin Nos. of top view are CAD register Nos. Bottom side : Heat sink side.

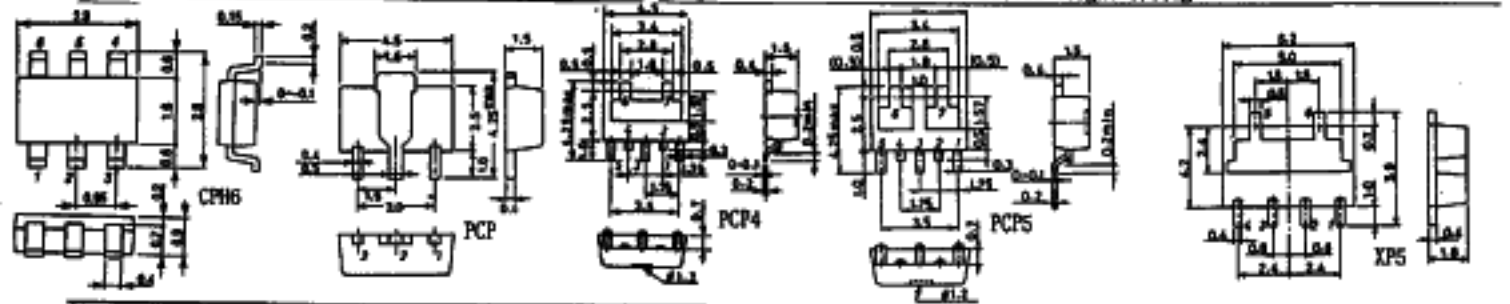
| | | |
|----------------------|----------------------|--|
| SANYO:SSFP | SANYO:SMCP(SC-75A) | SANYO:MCP(SC-70), MCP4(SC-82, A), MCP5 |
| Device weight:0.002g | Device weight:0.003g | Device weight:0.006g, 0.007g, 0.007g |



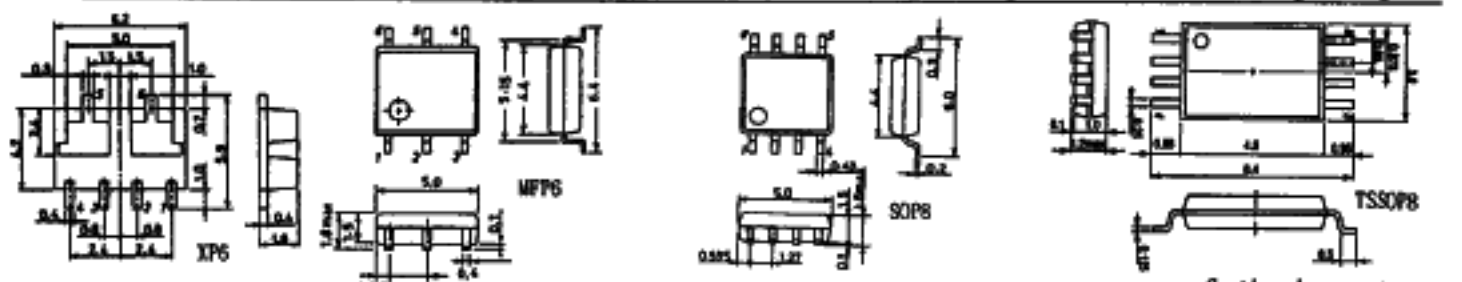
| | | |
|-------------------------|---|------------------------------|
| SANYO:CP(SC-69, TO-236) | SANYO:CP4, CP5, CP6(SC-61, SC-74A, SC-74, SOT143) | SANYO:CPB3, CPB5 |
| Device weight:0.013g | Device weight:0.013g, 0.014g, 0.015g | Device weight:0.013g, 0.015g |



| | | |
|----------------------|---|-----------------------|
| SANYO:CPB6 | SANYO:PCP, PCP4/5(SC-62, SOT89) Bottom View | SANYO:XP5 Bottom View |
| Device weight:0.015g | Device weight:0.058g, 0.052g | Device weight:0.062g |



| | | | |
|-----------------------|----------------------|----------------------|---------------------|
| SANYO:XP6 Bottom View | SANYO:MFP6 | SANYO:SOP8 | SANYO:TSSOP8 |
| Device weight:0.062g | Device weight:0.089g | Device weight:0.093g | Device weight:0.04g |



Continued on next page

SANYO Discrete Device Package Outlines (unit:mm)

o/c Surface Mount Type Outlines (JEDEC and EIAJ name are in parentheses.)

Top View Pin Nos. of top view are CAD register Nos. Bottom side: Heat sink side.

SANYO:TP, TP-FA(SC-64, SC-63, TO-251)

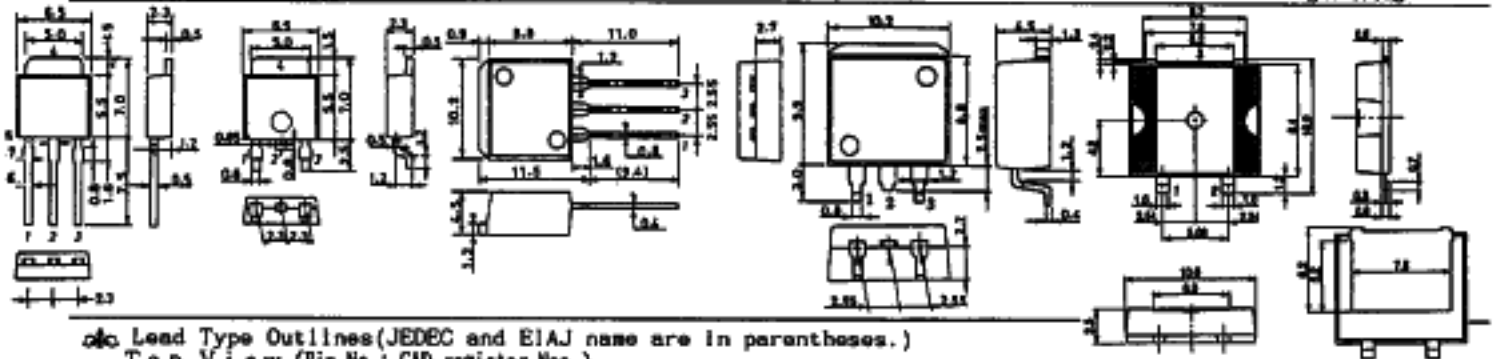
Device weight:0.315g, 0.282g

SANYO:SNP, SNP-YD(forming type)(SC-83)

Device weight:1.4g

SANYO:ZP

Device weight:0.62g



o/c Lead Type Outlines (JEDEC and EIAJ name are in parentheses.)

Top View (Pin No.: CAD register Nos.)

SANYO:SPA(TO-18, TO-39)

Device weight:0.098g

SANYO:NP(SC-43A, TO-92, SOT-54)

Device weight:0.269g

SANYO:MP(SC-51, TO-226)

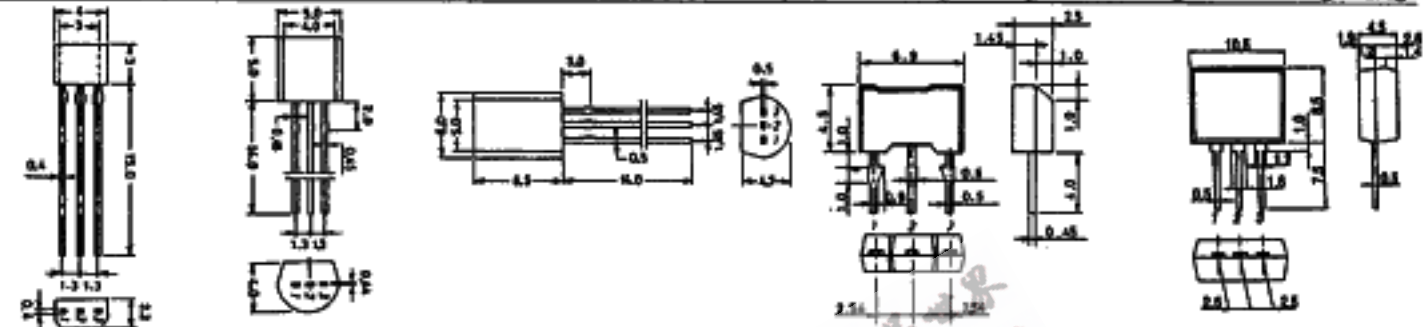
Device weight:0.578g

SANYO:NMP(SC-71)

Device weight:0.21g, AN use:0.275g

SANYO:FLP

Device weight:1.1g

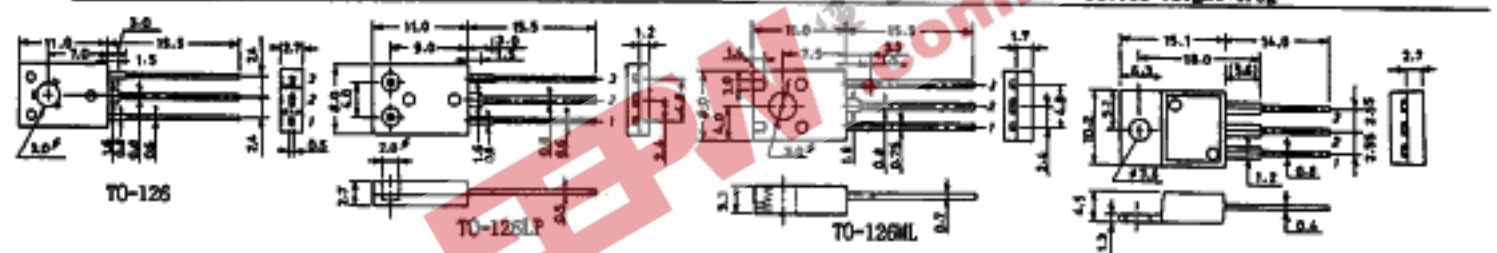


SANYO:TO-126(TO-126, TO-225, SOT-32), TO-126LP, TO-126ML(SOT-82)

Device weight:0.675g, 0.7g, 0.97g

SANYO:TO-220AR, AR(SC-45, 46, TO-220AA)

Device weight:1.9g



SANYO:TO-220C1

Device weight:1.75g

SANYO:TO-220M(SC-67, SOT-186)

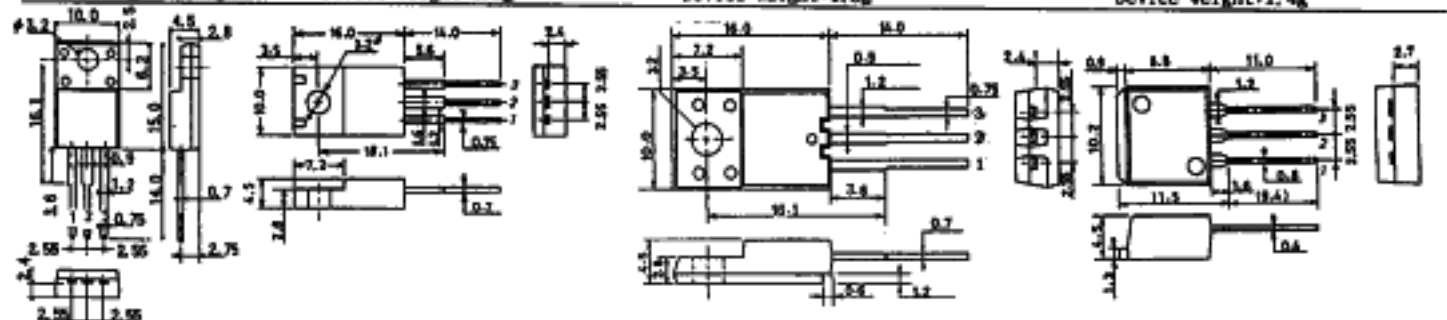
Device weight:1.9g

SANYO:TO-220F(LS)(SC-67, SOT-189)

Device weight:1.8g

SANYO:TO-220MF

Device weight:1.4g



SANYO:TO-3PB(SC-65, TO-218)

Device weight:5.8g

SANYO:TO-3PML(180WATT218)

Device weight:5.3g

SANYO:TO-3PBL(TO-247)

Device weight:9.2g

SANYO:TO-3JML

Device weight:9.2g

