

## Transistors for TV Display Video Output Use

Features \*Excellent HF characteristic. \*Small reverse transfer capacitance. \*Complementary PNP and NPN types.

- \* Adoption of MBIT, FBET processes. \* Highly resistant to dielectric breakdown.

Case Outline (unit time)

SANYO:CP

1:Base,2:Emitter,

3: Collector 3

dc General-Purpose Type (※: T<sub>case</sub>25℃) For PNP, (-) sign is omitted.

Type No.	Package	Absolute Maximum Ratings/Ta=25°C				Electrical Characteristics/Ta=25°C					
		V <sub>CEO</sub> (V)	V <sub>CED</sub> (V)	I <sub>C</sub> (A)	P <sub>C</sub> (W)	f <sub>T</sub> typ (MHz)	V <sub>CE</sub> / I <sub>C</sub> (V/mA)	C <sub>ob</sub> typ (pF)	C <sub>re</sub> (pF)	V <sub>CB</sub> (V)	h <sub>FE</sub>
2SC2857	N P	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-220WL	300	300	0.2	※10	min50	30 / 10	5.3	-	50	40 ~ 200

### High-Definition CRT Display Use

2SA1580/2SC4104	C P	70	60	50m	0.2	700	10 / 10	1.7/1.3	1.3/1	10	60	~ 270
2SA1433/2SC3504	M P				0.9	700	10 / 10	1.7	1.3/1	10	60	~ 320
2SA1370/2SC3467		200	200	0.1	1.0	150	30 / 10	2.6/1.7	1.7/1.2	30	40	~ 320
2SA1371/2SC3468		300	300	0.1	1.0	150	30 / 10	3.1/2.6	2.3/1.8	30	40	~ 320
2SA1710/2SC4490	NMP	300	300	0.1	1.0	70	30 / 10	3.1/2.6	2.3/1.8	30	40	~ 320
2SA1787/2SC4650		200	200	0.1	1.0	150	30 / 10	2.6/1.7	1.7/1.2	30	40	~ 320
2SA1828/2SC4732	FLP	200	200	0.1	1.3	150	30 / 10	2.6/1.7	1.7/1.2	30	60	~ 320
2SA1829/2SC4733		300	300	0.1	1.3	150	30 / 10	3.1/2.6	2.3/1.8	30	60	~ 320
2SC4884		300	300	0.1	1.5	70	30 / 10	2.6	1.8	30	60	~ 320
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		300	300	0.1	1.2	70	30 / 10	3.1/2.6	2.3/1.8	30	40	~ 320
2SA1380/2SC3502		200	200	0.1	1.2	150	30 / 10	2.6/1.7	1.7/1.2	30	40	~ 320
2SA1381/2SC3503		300	300	0.1	1.2	150	30 / 10	3.1/2.6	2.3/1.8	30	40	~ 320
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		300	300	0.1	1.5	70	30 / 10	3.1/2.6	2.3/1.8	30	40	~ 320
2SA1480/2SC3790		300	300	0.1	1.5	150	30 / 10	3.1/2.6	2.3/1.8	30	40	~ 320
2SC4217		300	300	0.2	1.5	70	10 / 10	3.5	-	50	40	~ 200
2SC4378		300	300	0.2	1.5	100	30 / 10	3.9	3.2	30	60	~ 320
2SC4188		TO-220	200	200	0.1	※10	150	30 / 10	1.8	1.3	30	40

Underlined type Nos. are before mass production

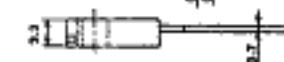
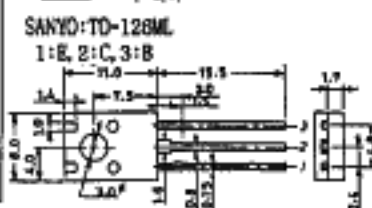
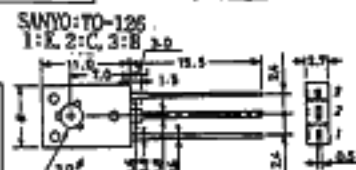
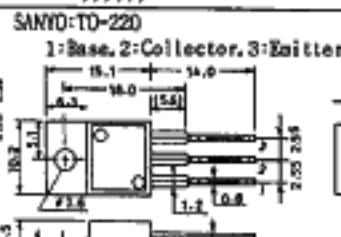
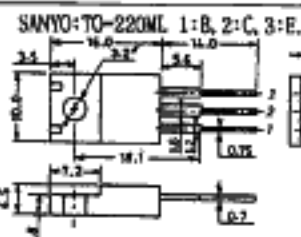
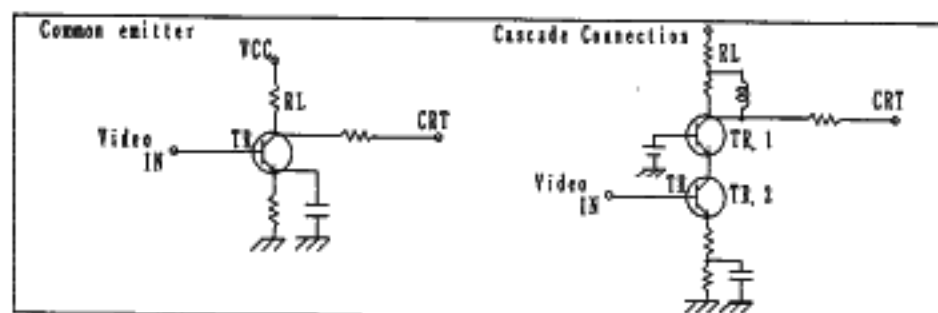
\*Classification by hFE

40	C	80	60	D	120	100	E	200	180	F	320
(CP type)			60	3	120	90	4	180	135	5	270

2SC5291(100~400)

100	R	200	140	S	280	200	T	400
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\*Equivalent Circuit for Video Output Use



SANTO:TD-220ML 1:R. 2:C. 3:E.

These specifications are subject to change without notice.

## SANYO Discrete Device Package Outlines(unit:mm)

### Small-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

### Large-Signal Transistors

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

### Surface Mount Types

Lead Types ML:No insulating needed.

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

Lead Types

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

PB, BL: no insulating needed.

### Notes

Nomenclature of house NOs.

The first several letters of the type Nos. of the FSS, FTD, FW, FTS, FC, FP, FH, 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

Type Nos. of 1XX or 1XXX are p-channel types.

Type Nos. of 2XX or 2XXX are n-channel types.

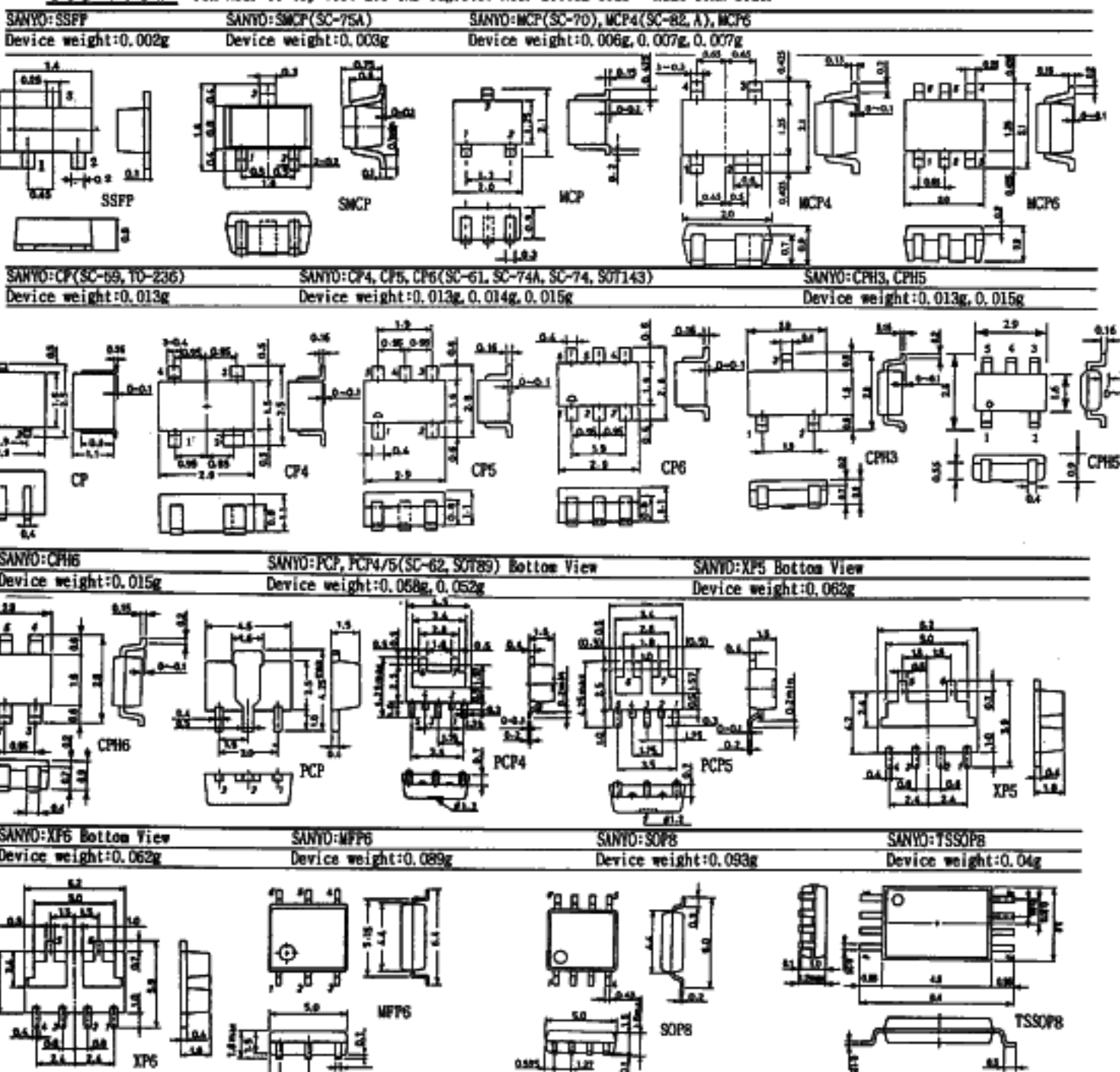
XP package is excluded.

\*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.



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## SANYO Discrete Device Package Outlines (unit:mm)

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)

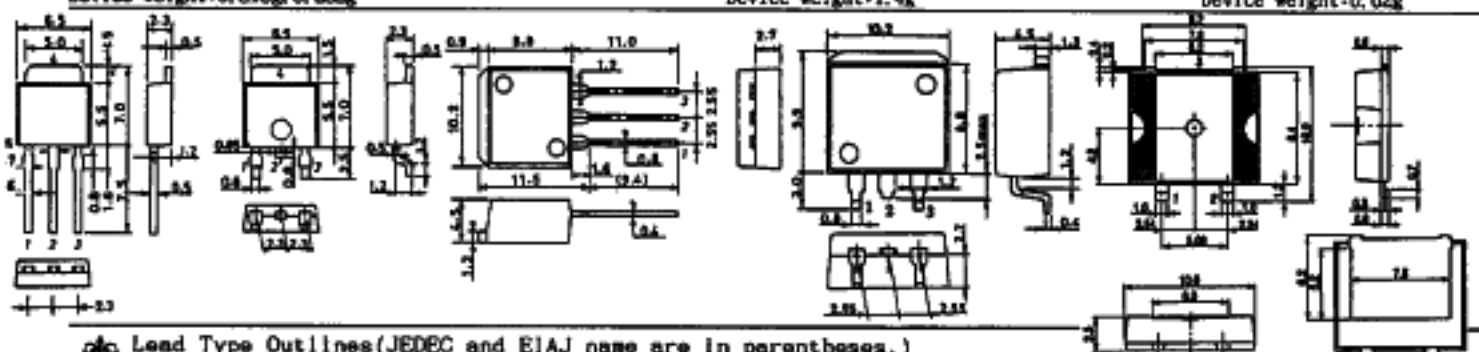
Device weight:0.315g, 0.282g

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

Device weight:1.4g

SANYO:2P

Device weight:0.62g



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

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

SANYO:SPA(TO-18, TO-39) SANYO:NP(SC-43A, TO-92, SOT-54) SANYO:MP(SC-51, TO-226) SANYO:NMP(SC-71)

Device weight:0.098g

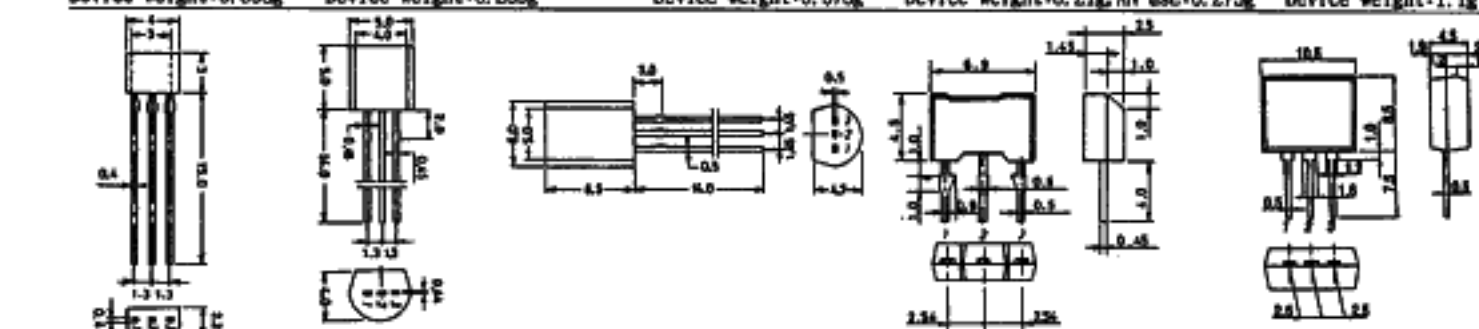
Device weight:0.269g

Device weight:0.578g

Device weight:0.21g, AN use:0.275g

SANYO:FLP

Device weight:1.1g

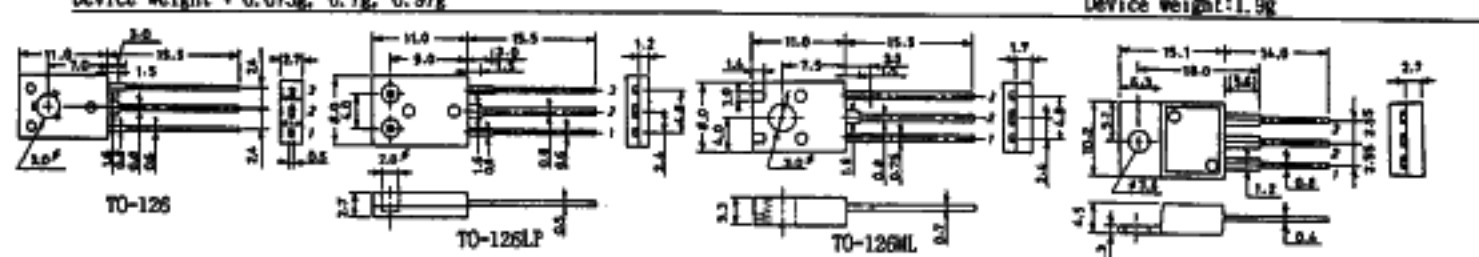


SANYO:TO-126(TO-126, TO-225, SOT-32), TO-126LP, TO-126ML(SOT-82)

Device weight:0.675g, 0.7g, 0.97g

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

Device weight:1.9g



SANYO:TO-220C1

Device weight:1.75g

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

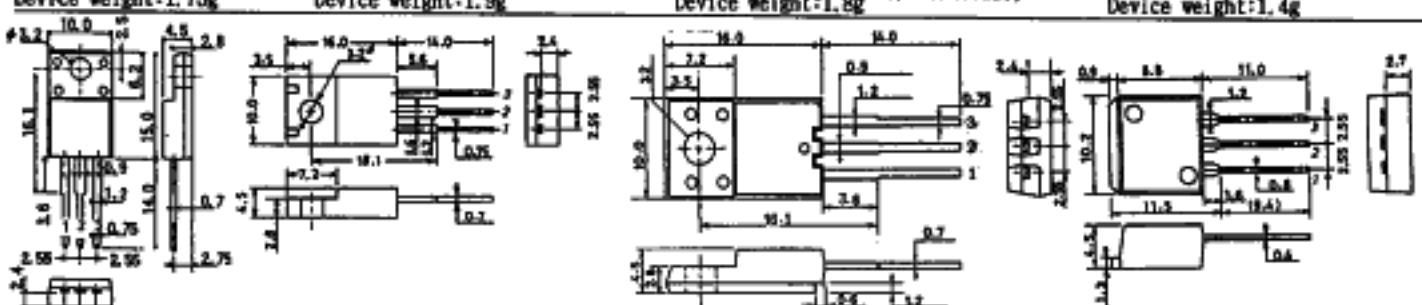
Device weight:1.5g

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

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(18WATT218)

Device weight:5.3g

SANYO:TO-3PBL(TO-247)

Device weight:9.2g

SANYO:TO-3JML

Device weight:9.2g

