

Transistors for Very High-Definition CRT Display Video Output Use

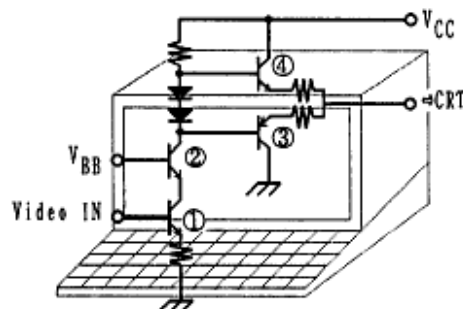
Our transistors for CRT display use are fabricated using our original process technology. They are designed to meet the characteristic requirements for CRT use.

*Features *Adoption of FBET process

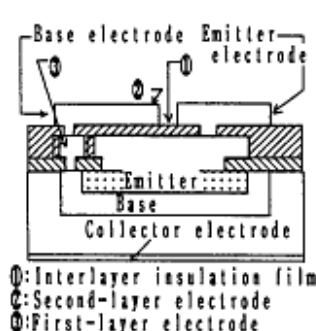
- *Less parasitic capacitance \Rightarrow Reduction (1/2 reduction compared with predecessors) in C_{ob} (output capacitance), C_{re} (reverse transfer capacitance)
- *Increase in effective area of chip \Rightarrow Increase (30% increase) in I_c (current capacity)
- *Ideal pattern formation, fast switching time, high energy handling capability, excellent HF characteristic
- *Complementary PNP and NPN types (Case outline: FLP, TO-126, TO-126ML, TP, TO-220, TO220ML)

*Use *Wide-band amp (Video band up to 100MHz)

BLOCK DIAGRAM



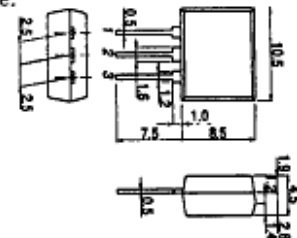
FBET STRUCTURE



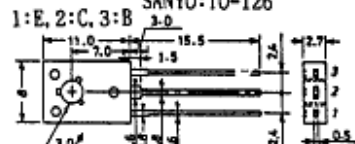
Case Outlines (unit:mm)

SANYO:FLP

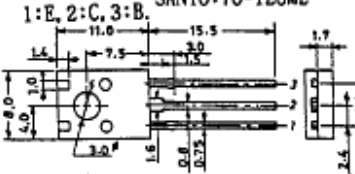
1:Emitter, 2:Collector, 3:Base.



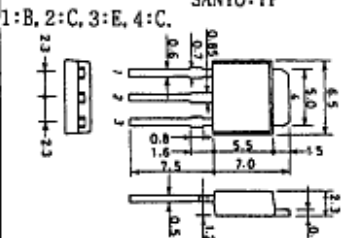
SANYO:TO-126



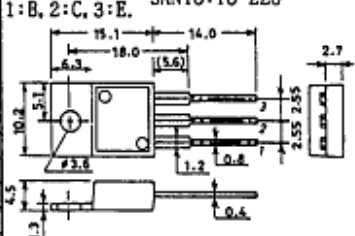
SANYO:TO-126ML



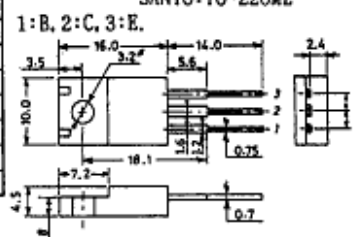
SANYO:TP



SANYO:TO-220



SANYO:TO-220ML



*:Tc=25°C. ♦:Tc=50°C. For PNP, (-) sign is omitted.

Type No.	Package	Absolute Maximum Ratings/Ta=25°C				Electrical Characteristics/Ta=25°C						
		V _{CBO} (V)	V _{CEO} (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}	
PNP/NPN												
2SA1402/2SC3596	TO-126	80	60	0.3	※8	700	10 100	3.0/2.3	2.3/1.8	30	40-320	
2SA1403/2SC3597		80	60	0.5	※10	800	10 100	5.2/3.4	4.6/2.9	30	40-320	
2SA1404/2SC3598		120	120	0.2	※8	500	10 50	2.7/2.0	2.1/1.6	30	40-320	
2SA1405/2SC3599		120	120	0.3	※8	500	10 50	4.3/2.9	3.8/2.5	30	40-320	
2SA1406/2SC3600		200	200	0.1	※7	400	30 30	2.3/1.8	1.7/1.4	30	40-320	
2SA1407/2SC3601		200	200	0.15	※7	400	30 50	3.0/2.5	2.5/2.0	30	40-320	
2SA1723		30	20	0.3	※5	1500	5 100	5.8	5.0	10	15-100	
2SC4271		30	20	0.3	※5	2200	5 50	3.9	3.2	10	40-200	
2SC3595		30	20	0.5	※5	2000	5 100	6.0	4.6	10	40-200	
2SC4821	30	20	0.5	1.3	2000	5 100	6.0	4.6	10	40-200		
2SA1848/2SC4822	FLP	80	70	0.3	1.3	600	10 100	3.1/2.4	2.4/1.9	30	60-320	
2SA1849/2SC4823		80	70	0.5	1.3	700	10 100	5.4/3.6	4.8/3.1	30	60-320	
2SA1850/2SC4824		120	120	0.2	1.3	400	10 50	2.8/2.1	2.2/1.7	30	60-320	
2SA1851/2SC4825		120	120	0.3	1.3	400	10 50	4.4/3.1	4.0/2.7	30	60-320	
2SA1852/2SC4826		200	200	0.1	1.3	300	30 30	2.4/1.9	2.0/1.5	30	60-320	
2SA1853/2SC4827		200	200	0.2	1.3	300	30 50	3.2/2.6	2.7/2.2	30	60-320	
2SA1536/2SC3951		80	70	0.3	※8	600	10 100	3.1/2.4	2.4/1.9	30	40-320	
2SA1537/2SC3952		80	70	0.5	※10	700	10 100	5.4/3.6	4.8/3.1	30	40-320	
2SA1538/2SC3953		120	120	0.2	※8	400	10 50	2.8/2.1	2.2/1.7	30	40-320	
2SA1539/2SC3954	TO-126 ML	120	120	0.3	※8	400	10 50	4.4/3.1	4.0/2.7	30	40-320	
2SA1540/2SC3955		200	200	0.1	※7	300	30 30	2.4/1.9	1.8/1.5	30	40-320	
2SA1541/2SC3956		200	200	0.2	※7	300	30 50	3.2/2.7	2.7/2.2	30	40-320	
2SA1749/2SC4564		200	200	0.3	※10	400	30 100	5.0/4.2	4.2/3.4	30	40-320	
2SA1777/2SC4623		250	250	0.3	※10	400	30 100	5.0/4.2	4.2/3.4	30	40-200	
2SC3950		30	20	0.5	※5	2000	5 100	6.0	4.6	10	40-200	
2SC4563		100	80	0.5	※10	1200	10 100	4.4	3.8	30	30-200	
2SC4660		30	20	0.3	※8	2200	5 50	3.9	3.2	10	40-200	
2SA1875/2SC4976		TP	200	200	0.3	※12	400	10 100	5.0/4.2	4.2/3.4	30	60-320
2SA1474/2SC3780	TO-220	80	60	0.8	◆15	800	10 100	5.3/3.5	4.7/3.0	30	40-320	
2SA1475/2SC3781		120	120	0.4	◆15	500	10 50	4.4/3.0	3.9/2.6	30	40-320	
2SA1476/2SC3782		200	200	0.2	◆15	400	30 50	3.1/2.6	2.6/2.1	30	40-320	
2SC4411		100	80	0.5	※15	1200	10 100	4.4	3.8	30	30-200	
2SA1696/2SC4473	TO-220 ML	120	120	0.4	◆10	400	10 50	4.4/3.1	4.0/2.7	30	40-320	
2SA1697/2SC4474		200	200	0.2	◆10	300	30 50	3.2/2.7	2.7/2.2	30	40-320	

Underlined type Nos. are before mass production.

These specifications are subject to change without notice.

SANYO Discrete Device Package Outlines(unit:mm)

Small-Signal Transistors

Outlines name SSFP, SMCP, MCP, MCP4/6, CP, CP4/5/6, CPH3/5/6, 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

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

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, FH, series mean:

- 1'st F : Packages for complex type devices, (CP5/6, MCP4/6, 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.

NP package is excluded.

SSFP Super Small Flat Package
SMCP Super Mini Chip Pack.
MCP Mini Chip Pack. (FH type)
MCP4/6 Mini Chip Pack. (FC type)
CP Chip Pack.
CP5/6 Chip Pack. (FC type)
CPH3/5/6 * Chip Pack high-power
PCP Power Chip Pack.
PCP4/5 Power Chip Pack. (FP type)
XP (FX type)
TSSOP8 (FTS, FTD type)
SOP8 (FW, FSS type)
TP-FA Tiny Package
SMP-FD For large signal
ZP For large signal

NMP New MP
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 Fin Short fin type.
TO-3PB, 3PML Bushless, ML:Micaless
TO-3PBL Micaless
TO-3JML Bushless Large Jumbo Micaless

PB, BL:no insulating needed.

*:How to name CPH3/6 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

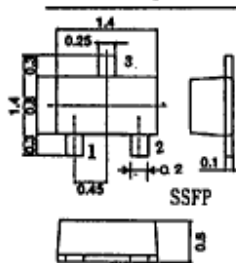
SANYO:SMCP(SC-75A)

SANYO:MCP(SC-70), MCP4(SC-82, A), MCP6

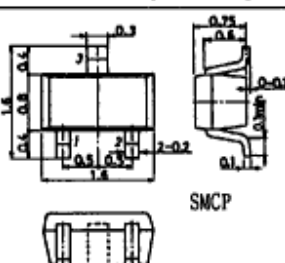
Device weight:0.002g

Device weight:0.003g

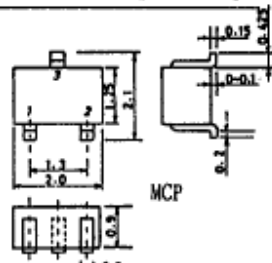
Device weight:0.006g, 0.007g, 0.007g



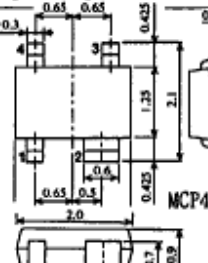
SSFP



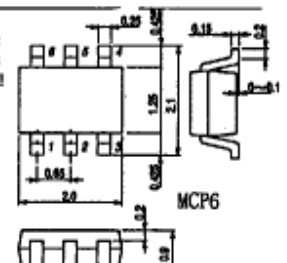
SMCP



MCP



MCP4



MCP6

SANYO:CP(SC-59, TO-236)

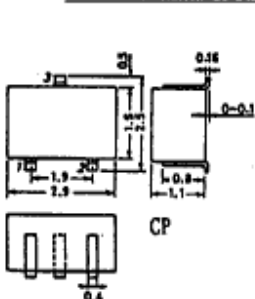
SANYO:CP4, CP5, CP6(SC-61, SC-74A, SC-74, SOT143)

SANYO:CPH3, CPH5

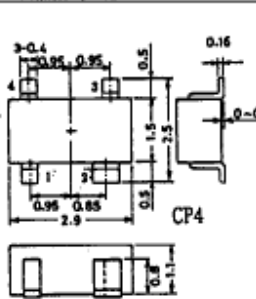
Device weight:0.013g

Device weight:0.013g, 0.014g, 0.015g

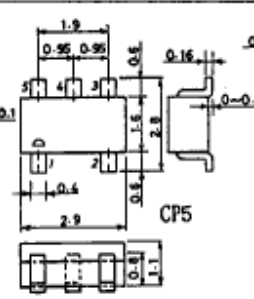
Device weight:0.013g, 0.015g



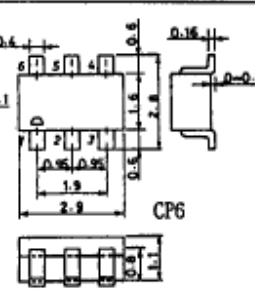
CP



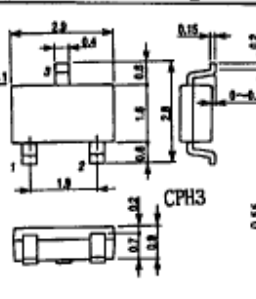
CP4



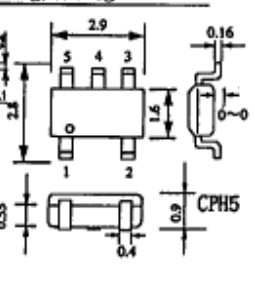
CP5



CP6



CPH3



CPH5

SANYO:CPH6

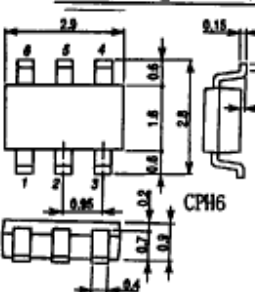
SANYO:PCP, PCP4/5(SC-62, SOT89) Bottom View

SANYO:XP5 Bottom View

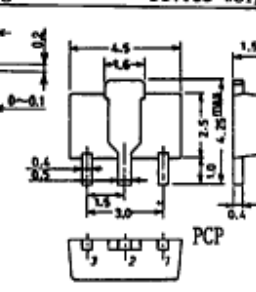
Device weight:0.015g

Device weight:0.058g, 0.052g

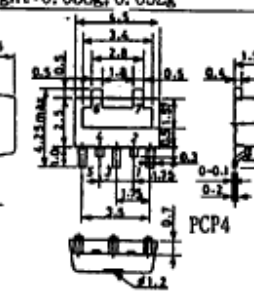
Device weight:0.062g



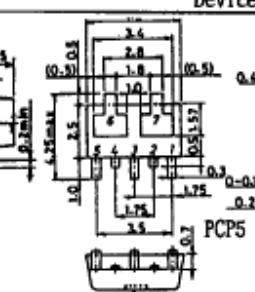
CPH6



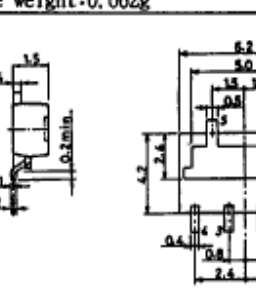
PCP



PCP4



PCP5



XP5

SANYO:XP6 Bottom View

SANYO:MFP6

SANYO:SOP8

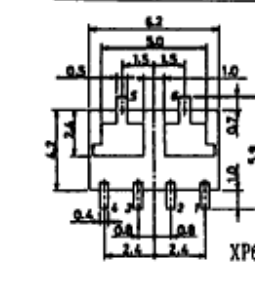
SANYO:TSSOP8

Device weight:0.062g

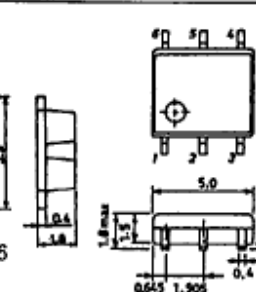
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Device weight:0.093g

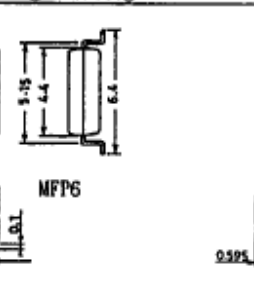
Device weight:0.04g



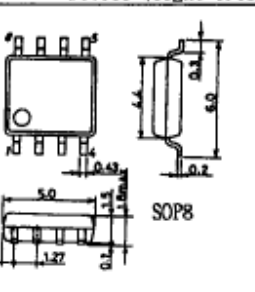
XP6



MFP6



SOP8



TSSOP8

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