

# General-Purpose Transistors



Sanyo general-purpose transistors are designed to meet every high-performance requirement.

They have wide application. They are easy to use because of large current capacity and wide ASO.

## Small-Signal Transistors.

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

Type No. ( ):Marking	Package	Absolute Maximum Ratings/Ta=25°C				Electrical Characteristics/Ta=25°C								
		V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>C</sub>	P <sub>C</sub>	h <sub>FE</sub>			f <sub>T</sub>			V <sub>CE(sat)</sub> max		
		(V)	(V)	(A)	(W)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	(A)	V <sub>CE</sub> (V)	I <sub>C</sub> (mA)	(MHz)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)	(V)
2SA1622(M) 2SC4211(L)	MCP	55	50	0.15	0.15	6	1	135 ~ 600	6	10	180 200	50	5	0.4
2SA1781(GS) 2SC4639(VT)	CP	55	50	0.15	0.2			135 ~ 600		10	180 200	50	5	0.4
2SA1782 2SC4640	SPA	55	50	0.15	0.3			140 ~ 560		10	180 200	50	5	0.4
2SA1783 2SC4641	NP	55	50	0.15	0.5			140 ~ 560		10	180 200	50	5	0.4
2SB1142	TO-126	60	50	2.5	1.5	2	100	100 ~ 400	10	50	140	1000	50	0.5
2SD1682	ML				*10			100 ~ 560						0.3

h F E Rank Classification.

100 R 200	140 S 280	200 T 400	280 U 560
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MCP, CP:外形

135 5 270	200 6 400	300 7 600
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Case Outlines(unit:mm)

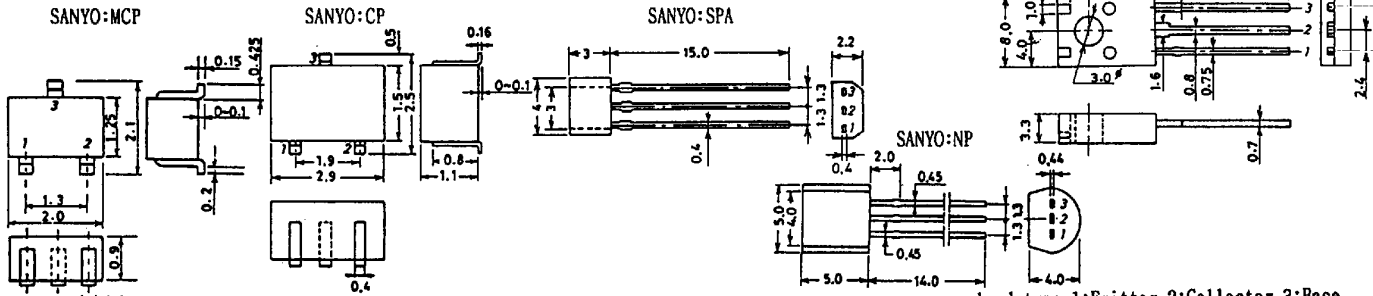
SANYO:MCP

SANYO:CP

SANYO:SPA

SANYO:NP

SANYO:TO-126ML



1:Base, 2:Emitter, 3:Collector

JEDEC : TO-92  
EIAJ : SC-43

lead type 1:Emitter, 2:Collector, 3:Base

For PNP, (-) sign is omitted.

## Large-Signal Transistors

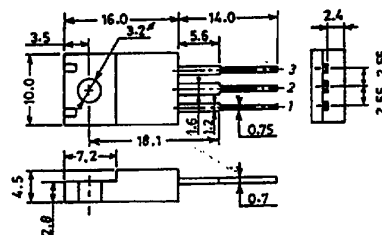
Type No.	Package	Absolute Maximum Ratings/Ta=25°C				Electrical Characteristics/Ta=25°C								
		V <sub>CBO</sub>	V <sub>CEO</sub>	I <sub>C</sub>	P <sub>C</sub> Tc=25°C	h <sub>FE</sub>			f <sub>T</sub>			V <sub>CE(sat)</sub> max		
		(V)	(V)	(A)	(W)	V <sub>CE</sub> (V)	I <sub>C</sub> (A)	(A)	V <sub>CE</sub> (V)	I <sub>C</sub> (A)	f <sub>T</sub> typ (MHz)	I <sub>C</sub> (A)	I <sub>B</sub> (A)	(V)
2SB1133 2SD1666	TO-220ML	60	60	3	25	5	0.5	70 ~ 280	5	0.5	40 8	2	0.2	1
2SB1274 2SD1913					20	5	0.5	70 ~ 280			100			

h F E Rank Classification.

70 Q 140	100 R 200	140 S 280
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Case Outlines(unit:mm) 1:Base, 2:Collector, 3:Emitter

SANYO:TO-220ML



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
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### 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
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### SANYO Transistor Package Name List.

#### Surface Mount Types

SSFP	Super Small Flat Package
SMCP	Super Mini Chip Pack.
MCP	Mini Chip Pack.
MCP4/6	Mini Chip Pack. (FH 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	(FSS, FTD type)
SOP8	(FW, FSS type)
TP-FA	Tiny Package
SMP-FD	For large signal
ZP	For large signal

#### Lead Types

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 (leade short type)
TO-220MF	Mini Fin Short fin type.
TO-3PB, 3PML	Bushless, ML:Micaless
TO-3PBL	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, MCP4/6, PCP4/5, XP5/6, SOP8, TSSOP8)
- 2'nd S: SOP8 package
- 2'nd W: Double chips
- 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

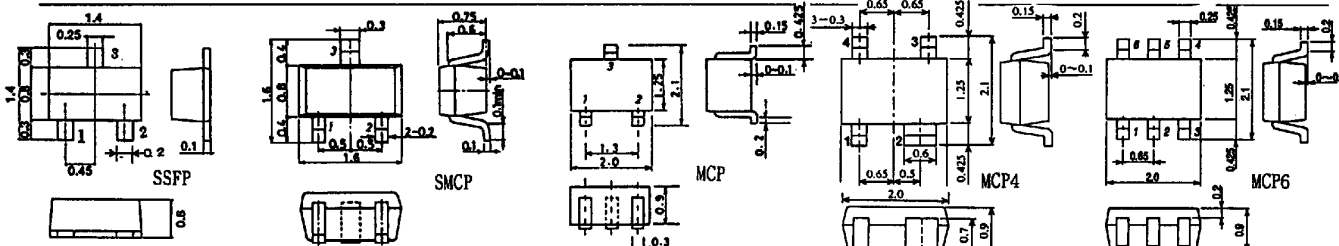
Type Nos. of 1XX or 1XXX are p-channel types.  
Type Nos. of 2XX or 2XXX are N-channel types.  
XP package is excluded.

\*\*How to name 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.

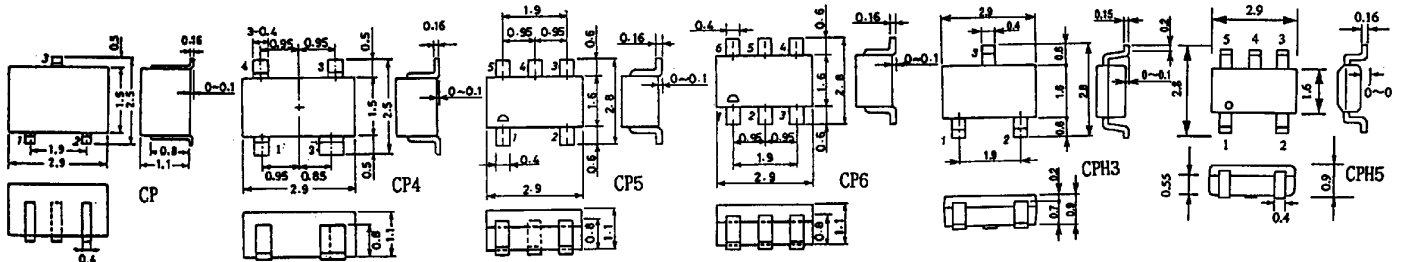
### Surface Mount Type Outlines (JEDEC and EIAJ name are in parentheses.)

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

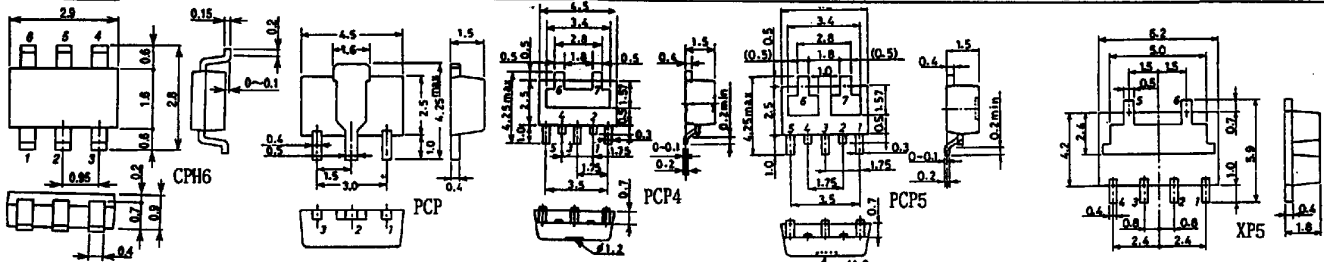
SANYO:SSFP	SANYO:SMCP(SC-75A)	SANYO:MCP(SC-70), MCP4(SC-82, A), MCP6
Device weight:0.002g	Device weight:0.003g	Device weight:0.006g, 0.007g, 0.007g



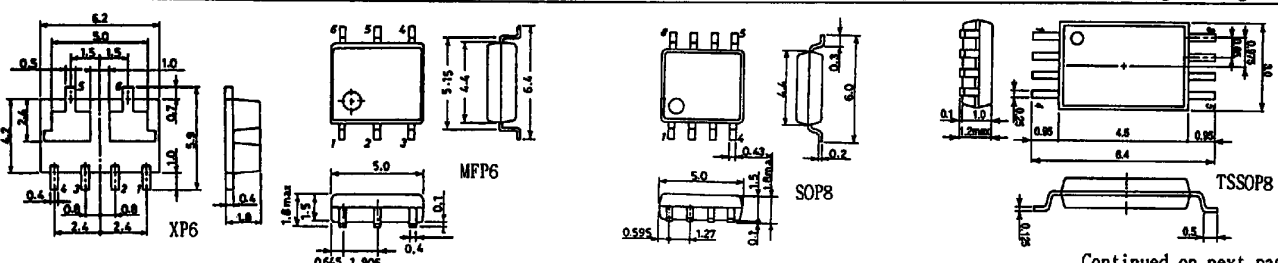
SANYO:CP(SC-59, TO-236)	SANYO:CP4, CP5, CP6(SC-61, SC-74A, SC-74, SOT143)	SANYO:CPH3, CPH5
Device weight:0.013g	Device weight:0.013g, 0.014g, 0.015g	Device weight:0.013g, 0.015g



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



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)

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)

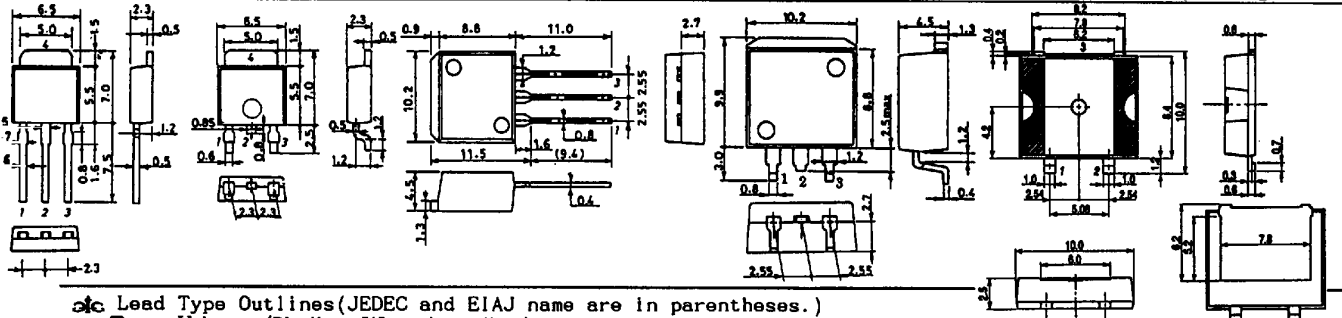
SANYO: SMP, SMP-PD (forming type) (SC-83)

SANYO: ZP

Device weight: 0.315g, 0.282g

Device weight: 1.4g

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)

SANYO: FLP

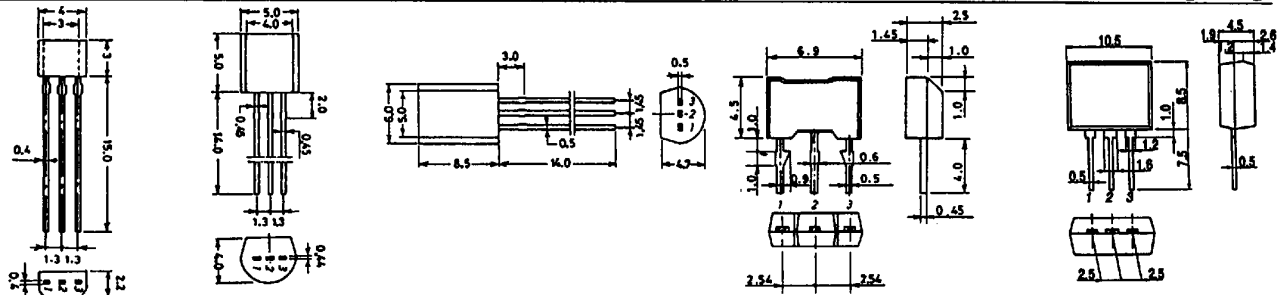
Device weight: 0.098g

Device weight: 0.269g

Device weight: 0.578g

Device weight: 0.21g, AN use: 0.275g

Device weight: 1.1g

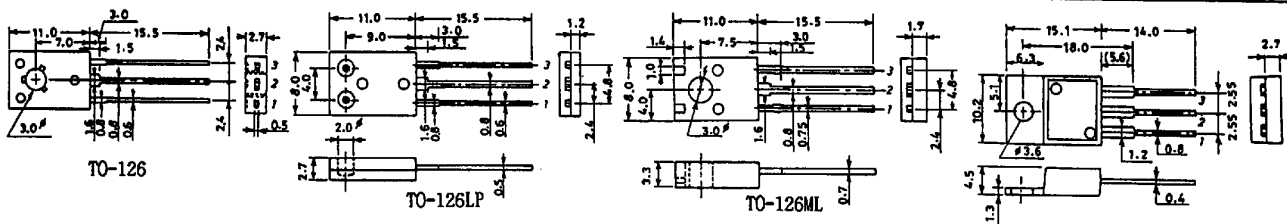


SANYO: TO-126 (TO-126, TO-225, SOT-32), TO-126LP, TO-126ML (SOT-82)

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

Device weight: 0.675g, 0.7g, 0.97g

Device weight: 1.9g



SANYO: TO-220CI

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

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

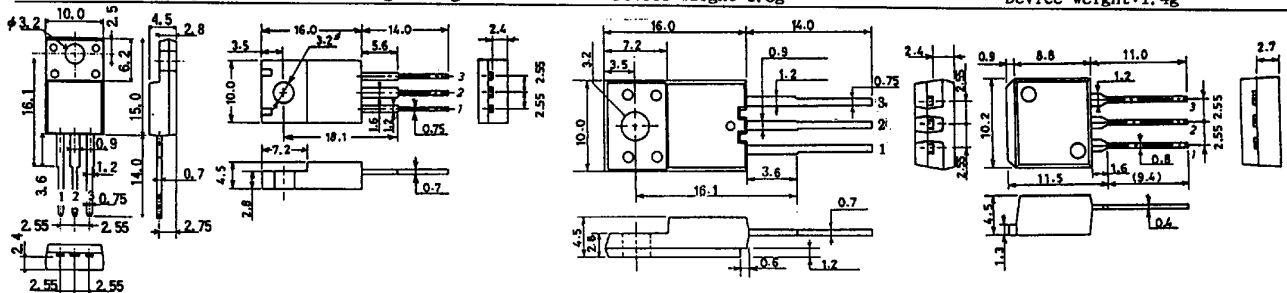
SANYO: TO-220MP

Device weight: 1.75g

Device weight: 1.9g

Device weight: 1.9g

Device weight: 1.4g



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

SANYO: TO-3PML (1SOWATT218)

SANYO: TO-3PBL (TO-247)

SANYO: TO-3JML

Device weight: 5.8g

Device weight: 5.3g

Device weight: 9.2g

Device weight: 9.2g

