

Power Transistor Surface Mount Package SMP(Surface Mount Power)

In recent years surface mount semiconductor products have found wide application from small-signal consumer equipment to high-power industrial equipment.
To meet user needs, we offer Sanyo power transistor surface mount package SMP (Surface Mount Power) that makes possible surface mounting of high-current switching transistors and high-voltage switching transistors.
The SMP is suitable for high-density mounting and automatic placement.

Features

The packing method comes in two types: stick and tape with embossed cavities that meet automatic placement requirements. In addition, it can be used for more various applications because the straight-lead type has become available.

For Inverter Lighting Fixtures.

*High blocking-voltage. *High reliability (adoption of MBIT, HVP process)

Type No.	Absolute Maximum Ratings/Ta=25°C				Electrical Characteristics/Ta=25°C										Related Type No.
	V _{CBO} (V)	V _{CEO} (V)	I _C (A)	P _C T _C =25°C (W)	V _{CE} (V)	I _C (A)	h _{FE}			I _C (A)	I _B (A)	V _{CE(sat)} max (V)	I _C (A)	V _{CEO(SUS)} min (V)	
							min	max	max						
2SC5420	1000	450	5	50	5	0.3	30	40	50	2.5	0.5	1	0.1	450	2SC5264

In addition to the above, the T0220FI type package is available. See the table.

Low Saturation Voltage (High-Current Switching)

Type No.	Absolute Maximum Ratings/Ta=25°C				Electrical Characteristics/Ta=25°C								Related Type No.
	V _{CBO} (V)	V _{CEO} (V)	I _C (A)	P _C T _C =25°C (W)	V _{CE} (V)	I _C (A)	h _{FE}		I _C (A)	I _B (A)	V _{CE(sat)} max (V)	f _T typ (MHz)	
2SB1449 2SD2198	60	50	5	30	2	1	70 ~ 280		3	0.3	0.4 0.4	30	2SB1268 2SD1904
2SB1450 2SD2199			7	40					4	0.4	0.4 0.4	10	2SB1269 2SD1905
2SB1451 2SD2200	90	80	5	30					3	0.3	0.5 0.4	20	2SB1270 2SD1906
2SB1452 2SD2201			7	40					4	0.4	0.5 0.4	20	2SB1271 2SD1907

hFE Rank (Q, R, S)

70 Q 140	100 R 200	140 S 280
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Switching Regulator Use (High-Speed Type)

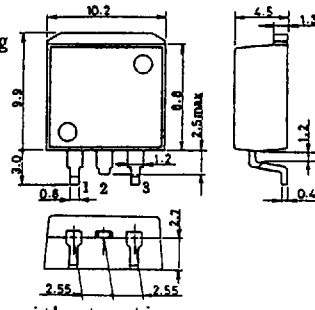
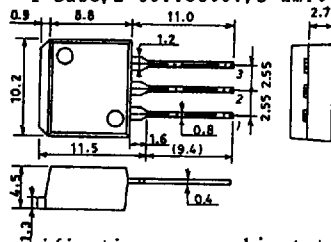
Type No.	Absolute Maximum Ratings/Ta=25℃				Electrical Characteristics/Ta=25℃										Related Type No.	
	V _{CBO} (V)	V _{CEO} (V)	I _C (A)	P _C T _C =25℃ (W)	V _{CE} (V)	I _C (A)	h _{FE} (1)		V _{CE} (V)	I _C (A)	h _{FE} (2) min	V _{CE} (V)	I _C (A)	f _T typ (MHz)		t _f max (us)
							min	max								
2SC4597	500	400	4	40	5	0.4	15	~ 50	5	2	10	10	0.4	20	0.3	2SC4219
2SC4598			7	50		0.8	15	~ 50		4	10		0.8	20		2SC4220
2SC4599	800	500	3	40		0.3	15	~ 50		1.5	8		0.3	18		2SC4221
2SC4600			5	50		0.6	15	~ 50		3	8		0.6	18		2SC4222
2SC4601	1100	800	1.5	40		0.1	10	~ 40		0.5	8		0.1	15		2SC4223
2SC4602			3	50		0.2	10	~ 40		1	8		0.2	15		2SC4224

In addition to the above mentioned, MOS FETs and schottky barrier diodes are available (Package:SMP). See the quick guides.

hFE Subrank (When specifying the hFE rank, specify two ranks or more.)
(For V_{CEO} ≤ 400V, 500V) (For V_{CEO} ≤ 800V)

15 L 30	20 M 40	30 N 50	10 K 20	15 L 30	20 M 40
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Outlines(unit:mm) SANYO:SMP
Straight type FD Forming
1:Base, 2:Collector, 3:Emitter



Product code numbers have been changed as shown below. Please contact Product Planning Department when you have a plan to use these transistors.

Label indication (an example)
Straight type : 2SB1449
FD forming : 2SB1449-FD5

*Existing FA-forming products will discontinue in the future.

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

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 (FTS, 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-3JML Bushless Large
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 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 CPH3/6 devices. Package name followed by 1, 2, 3 or 4 and then tow-digit

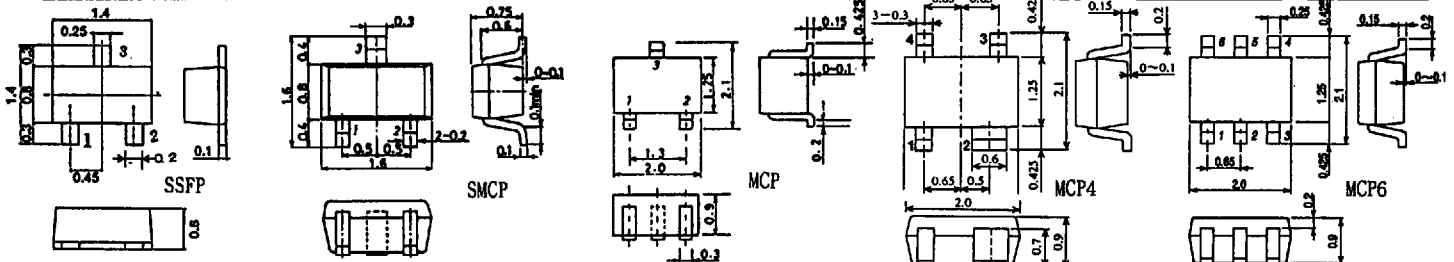
consecutive Nos. Figures following the package names mean: 1:PNP Tr, 2:NPN Tr, 3:P-ch MOSFET, 4:N-ch MOSFET.

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

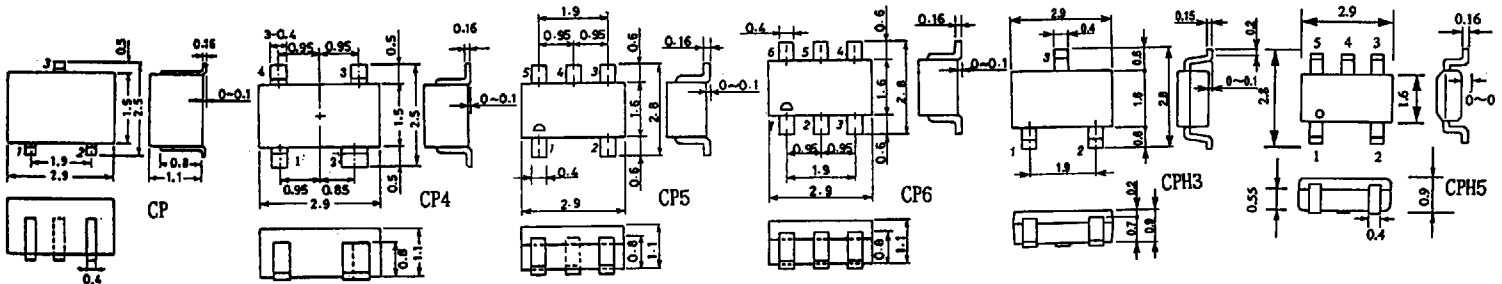
Top View

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

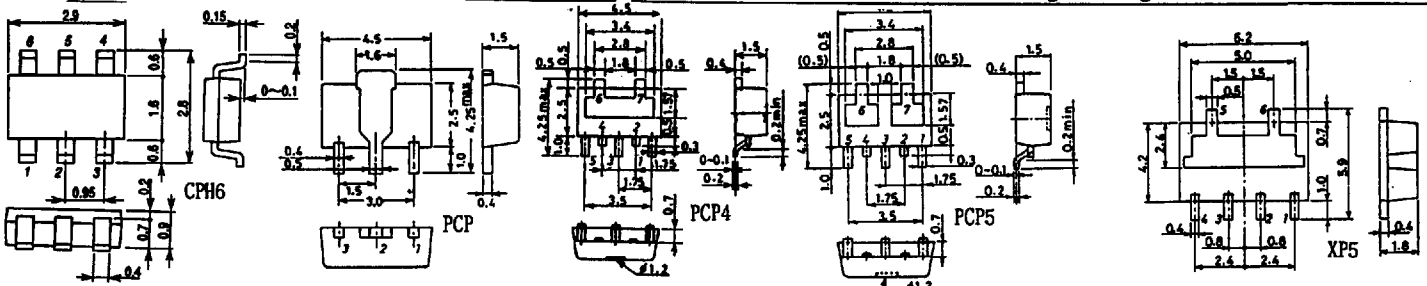
SANYO:SSFP SANYO:SMCP(SC-75A) SANYO:MCP(SC-70), MCP4(SC-82, A), MCP6
Device weight:0.002g Device weight:0.003g Device weight:0.006g, 0.007g, 0.007g



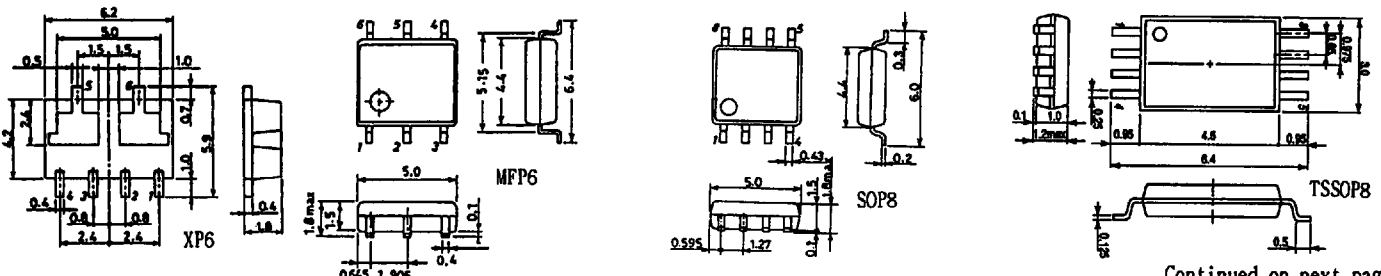
SANYO:CP(SC-59, TO-236) SANYO:CP4, CP5, CP6(SC-61, SC-74A, SC-74, SOT143) SANYO:CPH3, CPH5
Device weight:0.013g Device weight:0.013g, 0.014g, 0.015g Device weight:0.013g, 0.015g



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)

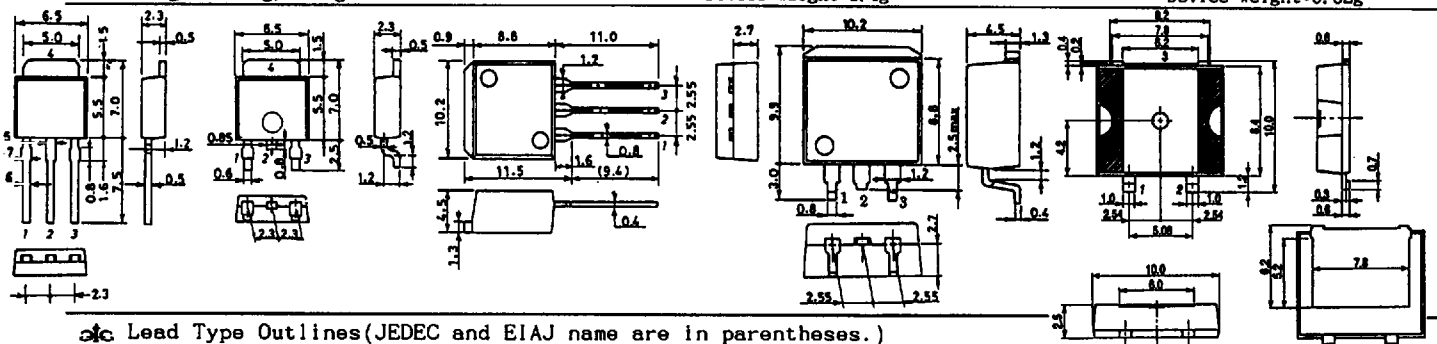
Device weight:0.315g, 0.282g

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

Device weight:1.4g

SANYO:ZP

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)

Device weight:0.098g

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

Device weight:0.269g

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

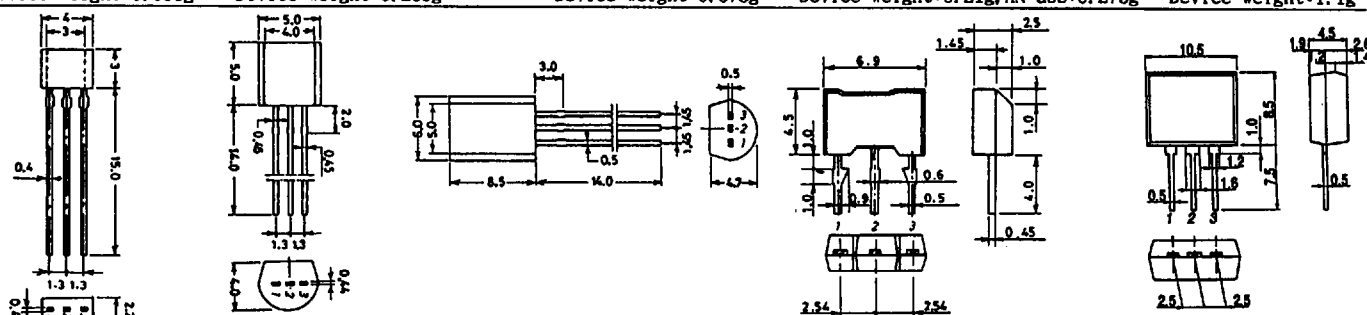
Device weight:0.578g

SANYO:NMP(SC-71)

Device weight:0.21g, AN use:0.275g

SANYO:FLP

Device weight:1.1g

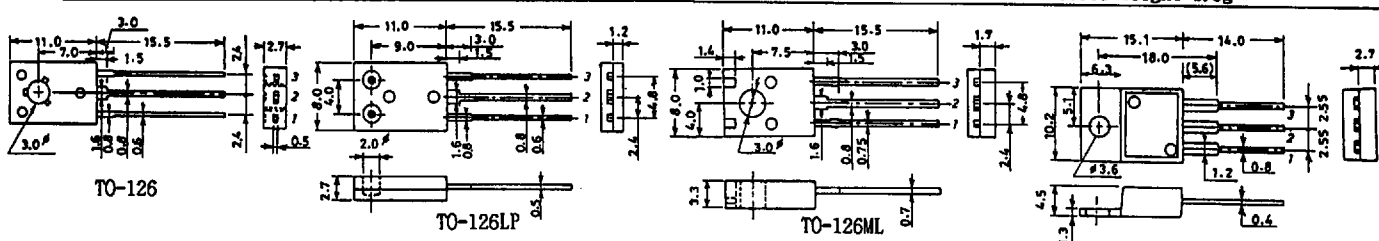


SANYO:TO-126(TO-126, TO-225, SOT-32), TO-126LP, TO-126ML(SOT-82)

Device weight : 0.675g, 0.7g, 0.97g

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

Device weight:1.9g



SANYO:TO-220CI

Device weight:1.75g

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

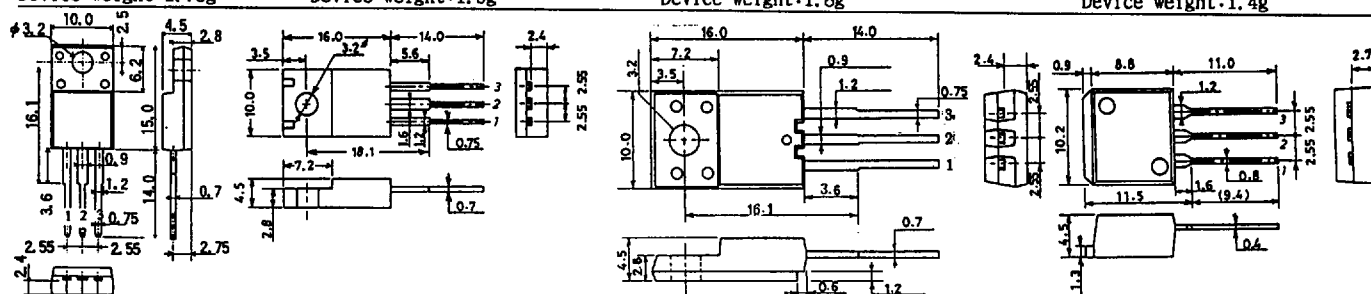
Device weight:1.9g

SANYO:TO-220FI(1S)(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(1SOWATT218)

Device weight:5.3g

SANYO:TO-3PBL(TO-247)

Device weight:9.2g

SANYO:TO-3JML

Device weight:9.2g

