

Low-Saturation Voltage Series(TO-220, MF, ML Package)

Applications

* Relay drivers. * High-speed inverters. * Converters. * High-current switching.

Features

* Low VCE(sat). * Highly resistant to breakdown because of wide ASO. * Fast switching speed.

VCEO 30V Series (hFE:Q,R,S)

(For PNP, minus 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 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 (MHz)
2SB1267 2SD1903	TO-220MF	60	30	8	30	2	1	70~280	3	0.15	0.5 0.4	120
2SB919 2SD1235	TO-220			8	30				3	0.15	0.5 0.4	
2SB903 2SD1212				12	35				5	0.25	0.5 0.4	
2SB1467 2SD2218	TO-220 ML			8	20				3	0.15	0.5 0.4	
2SB1468 2SD2219				12	25				5	0.25	0.5 0.4	

VCEO 50V/60V Series (hFE:Q,R,S)

2SB1268 2SD1904	TO-220MF	60	50	5	30	2	1	70~280	3	0.3	0.4 0.4	30					
2SB1269 2SD1905				7	40				4	0.4	0.4 0.4	10					
2SB824 2SD1060	TO-220			5	30				3	0.3	0.4 0.4	30					
2SB825 2SD1061				7	40				4	0.4	0.4 0.4	10					
2SB826 2SD1062				12	40				6	0.3	0.5 0.4	10					
2SB1134 2SD1667	TO-220ML			5	25				3	0.3	0.4 0.4	30					
2SB1135 2SD1668				7	30				4	0.4	0.4 0.4	10					
2SB1136 2SD1669				12	30				6	0.6	0.4 0.4	10					
2SA1289 2SC3253	TO-220			80	60				5	30	2	1	70~280	2.5	125m	0.4 0.4	100
2SA1290 2SC3254									7	35				3.5	175m	0.4 0.4	
2SA1291 2SC3255	10	40	5			0.25	0.4 0.4										
2SA1469 2SC3746	TO-220ML	5	20			2.5	125m	0.4 0.4									
2SA1470 2SC3747		7	25			3.5	175m	0.4 0.4									
2SA1471 2SC3748		10	30			5	0.25	0.4 0.4									

VCEO 80V Series (hFE:Q,R,S)

2SB1270 2SD1906	TO-220MF	90	80	5	30	2	1	70~280	3	0.3	0.5 0.4	20
2SB1271 2SD1907				7	40				4	0.4	0.5 0.4	
2SB920 2SD1236	TO-220			5	30				3	0.3	0.5 0.4	
2SB921 2SD1237				7	40				4	0.4	0.5 0.4	
2SB1454 2SD2202	TO-220ML			5	25				3	0.3	0.5 0.4	
2SB1455 2SD2203				7	30				4	0.4	0.5 0.4	

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-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 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

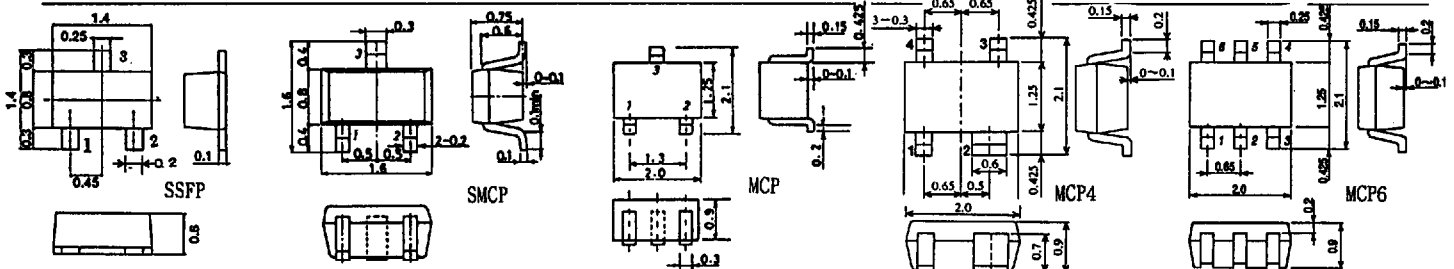
Type Nos. of 1XX or 1XXX are p-channel types.
 Type Nos. of 2XX or 2XXX are N-channel types.
 XP package is excluded.

*: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.

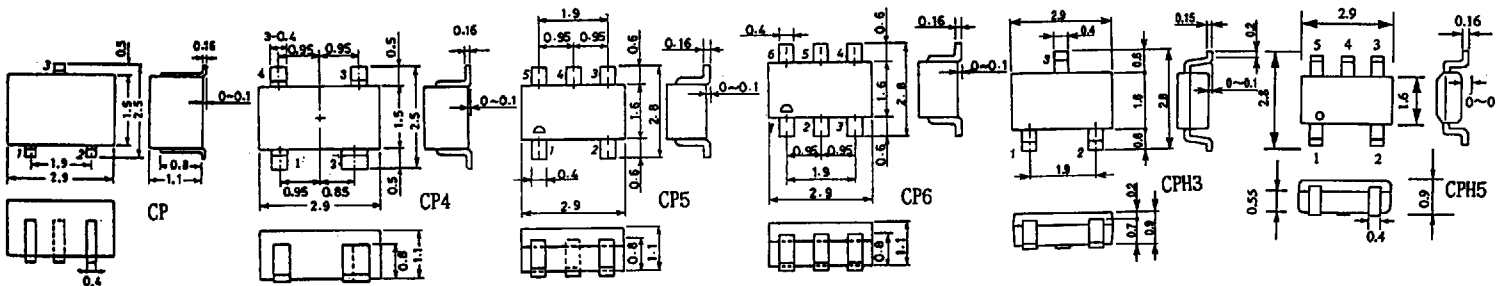
Surface Mount Type Outlines (JEDEC and EIAJ name are in parentheses.)

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

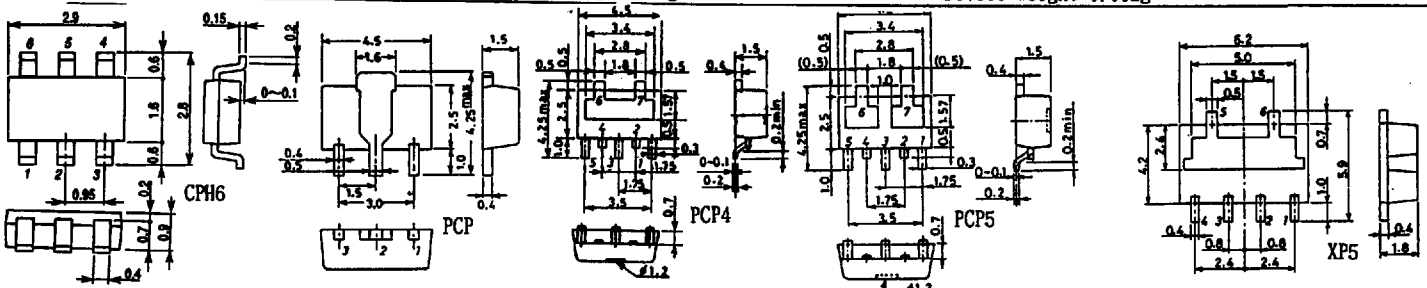
SANYO:SSFP SANYO:SMCP(SC-75A) SANYO:MCP(SC-70), MCP4(SC-82, A), MCP6
 Device weight:0.002g Device weight:0.003g Device weight:0.006g, 0.007g, 0.007g



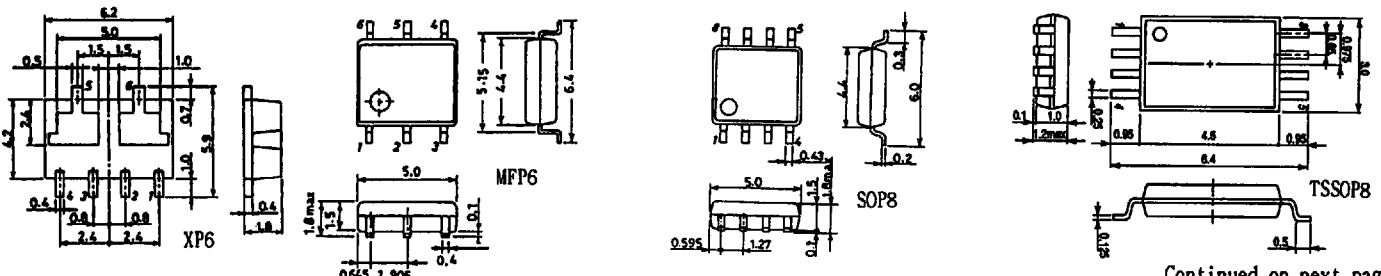
SANYO:CP(SC-59, TO-236) SANYO:CP4, CP5, CP6(SC-61, SC-74A, SC-74, SOT143) SANYO:CPH3, CPH5
 Device weight:0.013g Device weight:0.013g, 0.014g, 0.015g Device weight:0.013g, 0.015g



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



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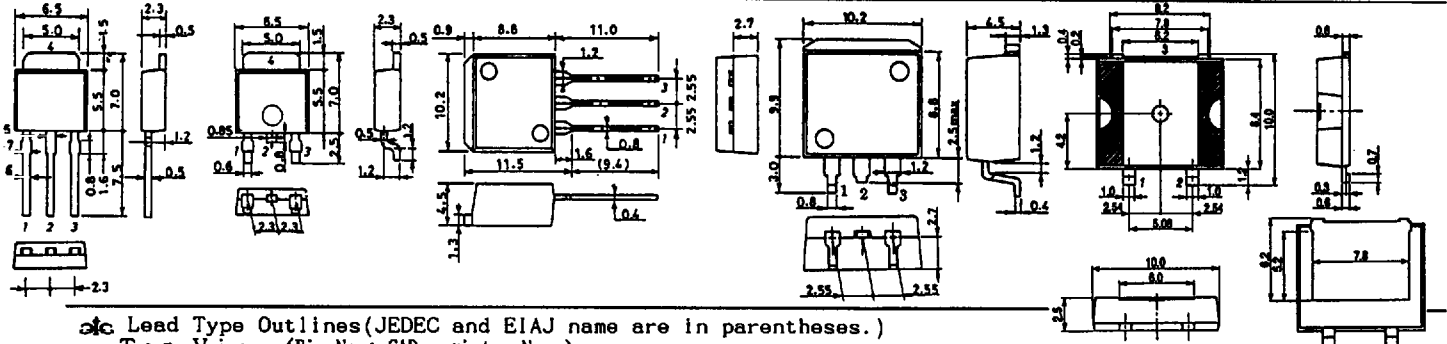
SANYO Discrete Device Package Outlines (unit:mm)

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: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.)

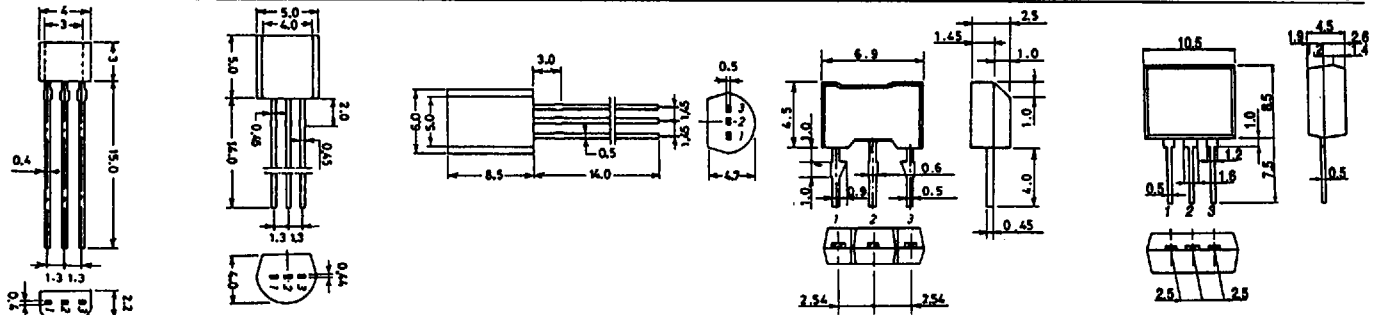
SANYO:SPA(TO-18, TO-39)
 Device weight:0.098g

SANYO:NP(SC-43A, TO-92, SOT-54)
 Device weight:0.269g

SANYO:MP(SC-51, TO-226)
 Device weight:0.578g

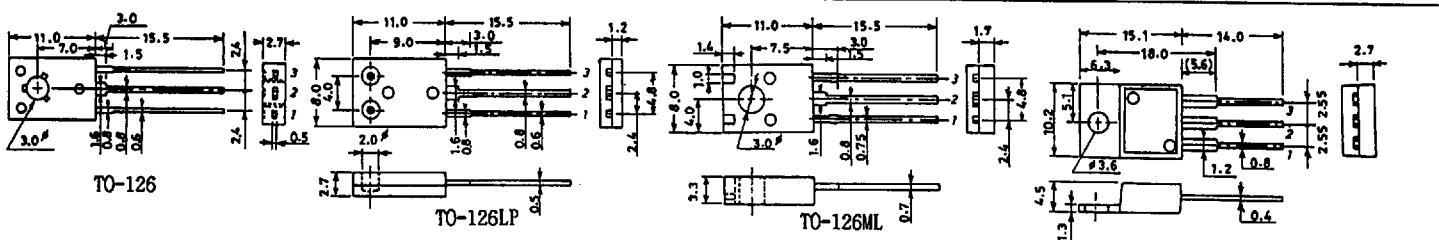
SANYO:NMP(SC-71)
 Device weight:0.21g, AN use:0.275g

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

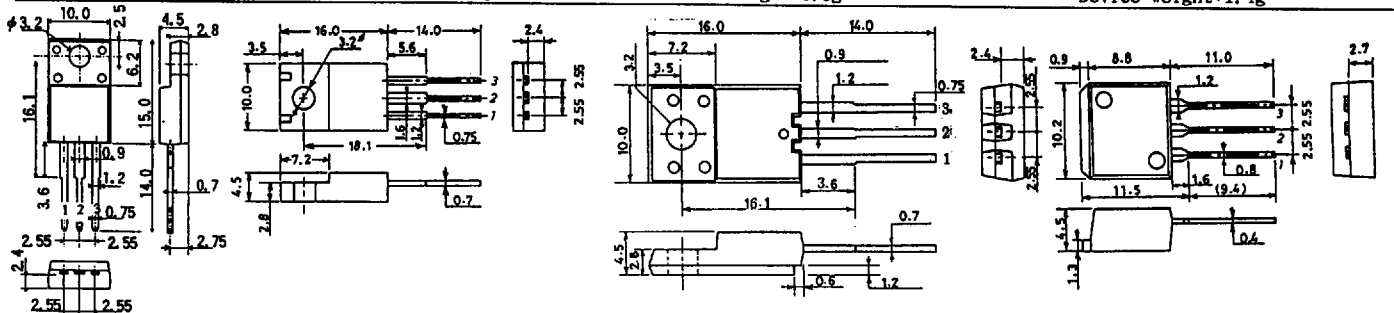


SANYO:TO-220CI
 Device weight:1.75g

SANYO:TO-220ML(SC-67, SOT-186)
 Device weight:1.9g

SANYO:TO-220FI(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(1SOWATT218)
 Device weight:5.3g

SANYO:TO-3PBL(TO-247)
 Device weight:9.2g

SANYO:TO-3JML
 Device weight:9.2g

