

Small-signal Junction FETs/MOSFETs

Features

- *Very low noise figure *Large $|Y_{fs}|$ *Low gate leak current
- *Small-sized package permitting FET-used sets to be made smaller

LF Amp, Low Noise, Analog Switch, Impedance Conversion Applications

(Junction type)

PD * sign (PCP Package) Mounted on ceramic board (250mm $\times$ 0.8mm)

Type No.	Package	Absolute Maximum Ratings/Ta=25°C			Electrical Characteristics/Ta=25°C					
		*VGDO VGDS (V)	I _D (mA)	P _D (mW)	Y _{fs} typ (mS)	C _{iss} typ (PF)	C _{rss} typ (PF)	V _{DS} (V)	IDSS *:IDSX (mA)	
():Marking										
2SK2170(JA)	SMCP	-30	20	100	5	5	0.9	10	1.2 ~ 4.5	
2SK1069(FJ)	MCP	-40	20	150	9	9	2.1	10	1.2 ~ 12	
2SK1332(V)		-30	20	150	5	5	0.9	10	0.6 ~ 6	
2SK2091(H)		-30	5	150	1.8	2.9	1.1	10	0.4 ~ 1.1	
2SK2219(D)		* -20	1	100	1.2	4.1	0.88	5	0.14 ~ 0.5	
2SK303(V)	CP	-30	20	200	6	5	1.5	10	0.6 ~ 12	
2SK771(FJ)		-40	20	200	9	9	2.1	10	1.2 ~ 12	
2SK2076(H)		-30	5	150	1.8	2.9	1.1	10	0.4 ~ 1.1	
2SK2171(KM)	PCP	-40	100	*800	15	11	2.5	10	40 ~ 75	
2SK304	SPA	-30	20	150	6	5	1.5	10	0.6 ~ 12	
2SK546		-40	1G 10	100	0.13	1.9	0.7	10	0.03 ~ 0.3	
2SK772		-40	20	300	9	9	2.1	10	1.2 ~ 12	
2SK1578		*-20	1	100	1.2	4.1	0.88	5	0.1 ~ 0.8	
2SK222	NP	-40	1G 10	300	17	14	3.5	10	0.6 ~ 12	
2SK223		-80	1G 10	400	20	12	2.5	30	1.2 ~ 24	

(MOS type)

2SK1839(JJ)	MCP	30	100	150	50	12	0.4	10	15
2SK536(BJ)	CP	50	100	200	40	15	0.5	10	20
2SK1840(JJ)	SPA	30	100	200	50	12	0.4	10	15
2SK669		50	100	200	40	15	0.5	10	20
2SK1841		30	100	200	50	12	0.4	10	15
2SK583		NP	50	200	600	40	15	0.5	10

HF Amp Applications

(Junction type)

2SK242(T=)	CP	* -20	20	150	6	4	0.04	5	0.6 ~ 12
2SK1740(IJ)		-40	75	250	15	11	2.5	10	40 ~ 75
2SK2539(AK)		-15	50	200	21	4.9	1.4	5	10 ~ 50
2SK212	SPA	* -20	20	200	6	4	0.04	5	0.6 ~ 12
2SK315		* -20	25	200	12	8	0.08	5	2.5 ~ 24
2SK937	NP	-40	100	300	15	11	2.5	10	40 ~ 75

(MOS type)

2SK1067(CJ)	MCP	16	30	150	11	2.3	0.035	10	1.2 ~ 1
2SK2268(WJ)		15	30	150	11	2.7	0.015	6	1.2 ~ 1
2SK543(CJ)	CP	20	30	200	11	2.4	0.035	10	1.2 ~ 1
2SK2269(WJ)		15	30	200	11	2.7	0.015	6	1.2 ~ 1
2SK544	SPA	20	30	300	11	2.4	0.035	10	1.2 ~ 1
2SK2270		15	30	300	11	2.7	0.015	6	1.2 ~ 1
3SK263(RJ)	CP4	15	30	200	14	2.7	0.015	6	*2.5 ~ 2
3SK264(SJ)		15	30	200	17	2.5	0.015	6	*5 ~ 2

High gm, Wide-Band Amp Applications

(Junction type)

2SK932(E) 2SK2394(YJ)	CP	-15 -15	50 50	200 200	50 38	10 10	3 2.9	5 5	5 6	~ 24 ~ 32	
2SK2218(KN)	PCP	-15	100	*800	32	5.5	1.6	5	40	~ 75	
2SK404 2SK427 2SK715 2SK2395	SPA	-20 -15 -15 -15	20 20 50 50	200 200 300 300	10 17 50 38	7 7 10 10.2	1.8 2 3 3.1	5 5 5 5	1.2 1.2 5 6	~ 12 ~ 12 ~ 24 ~ 32	
2SK1961		NP	-15	100	500	32	5.5	1.6	5	40	~ 75

Underlined type Nos. are before mass production.

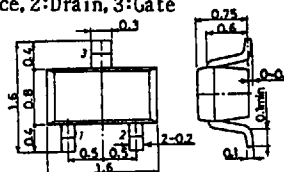
Precaution: Take care to prevent device breakage from static electricity because MOSFETs cannot withstand much static electricity.

These specifications are subject to change without notice.

Case Outlines (unit:mm)

SANYO:SMCP

1:Source, 2:Drain, 3:Gate



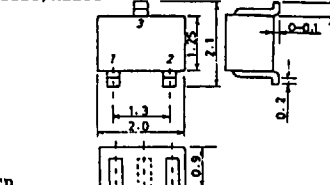
SANYO:MCP

1:Source, 2:Drain, 3:Gate.

K1069, K1332, K2091, K2219.

1:Gate, 2:Drain, 3:Source.

K1067, K1839, K2268



SANYO:CP

1:Gate, 2:Drain, 3:Source.

K242, K536, K543, K1840, K2269.

1:Source, 2:Drain, 3:Gate.

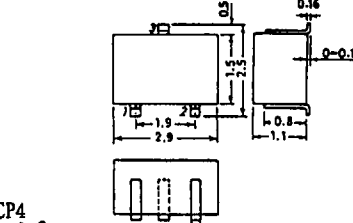
K303, K771, K932, K1740, K2076, K2394, K2539.

1:Gate, 2:Source, 3:Drain

J284, J285, J286, J501, J502, K1847, K1848.

K1849, K2273, K2867, K2909, K2910, K2911, K2969,

K3072.

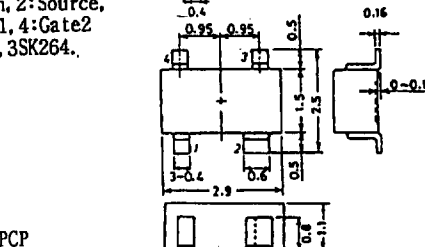


SANYO:CP4

1:Drain, 2:Source,

3:Gate1, 4:Gate2

3SK263, 3SK264.



SANYO:PCP

1:Gate, 2:Drain, 3:Source.

J187, J190, J193, J287, J288, J289, J316, J335,

J381, J416, J560, J561, J562, J563, K1467, K1470

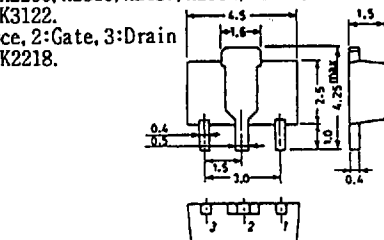
K1473, K1724, K1726, K1728, K2151, K2152, K2167

K2168, K2260, K2316, K2437, K2951, K3119, K3120

K3121, K3122.

1:Source, 2:Gate, 3:Drain

K2171, K2218.



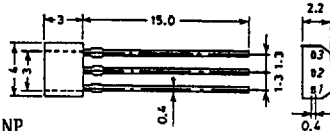
SANYO:SPA

1:Drain, 2:Source, 3:Gate.

K212, K315, K544, K669, K1841, K2270.

1:Source, 2:Gate, 3:Drain.

K304, K404, K427, K546, K715, K772, K1578, K2395



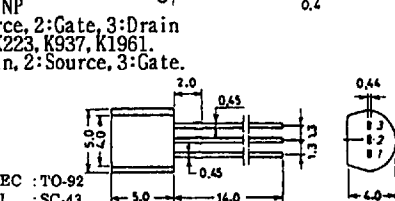
SANYO:NP

1:Source, 2:Gate, 3:Drain

K222, K223, K937, K1961.

1:Drain, 2:Source, 3:Gate.

K583.



JEDEC :TO-92

EIAJ :SC-43

MOSFETs Continued on next Page.

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-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, MCP4/6, 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

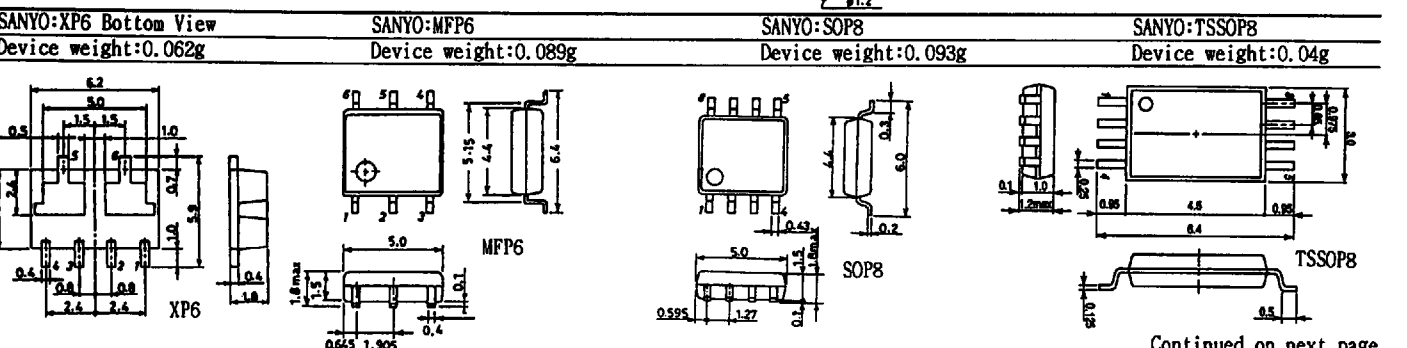
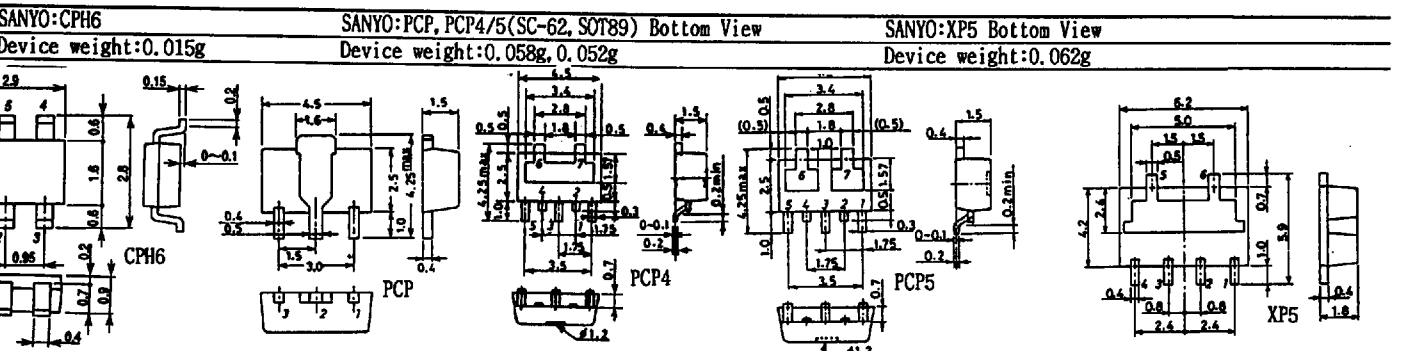
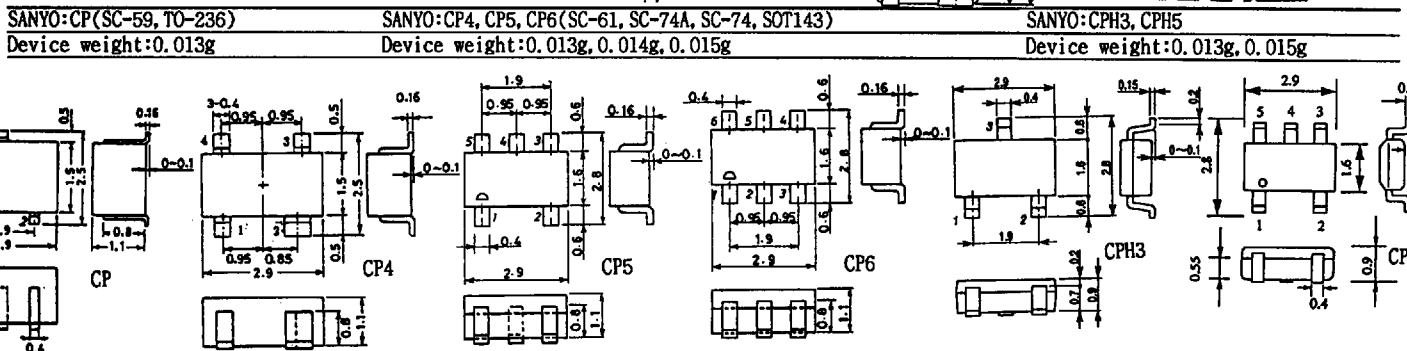
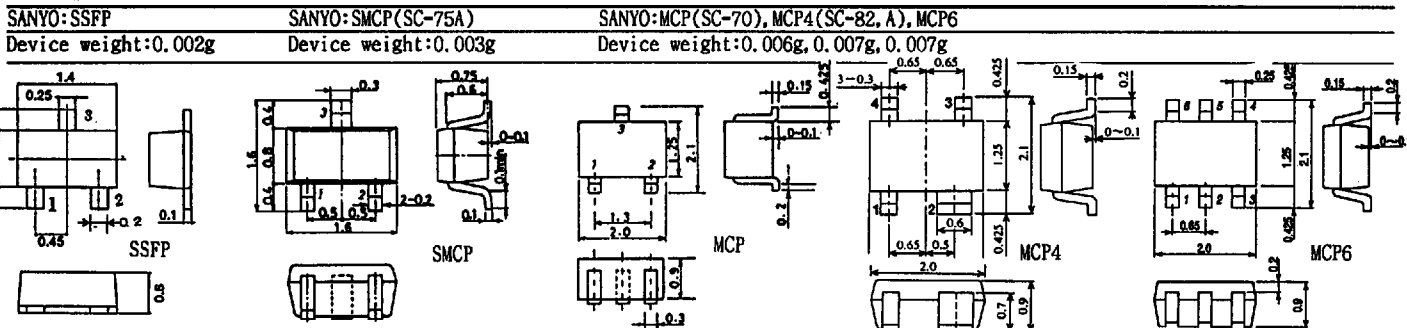
Type Nos. of 1XX or 1XXX are p-channel types.
Type Nos. of 2XX or 2XXX are N-channel types.
XP package is excluded.

*: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.



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)

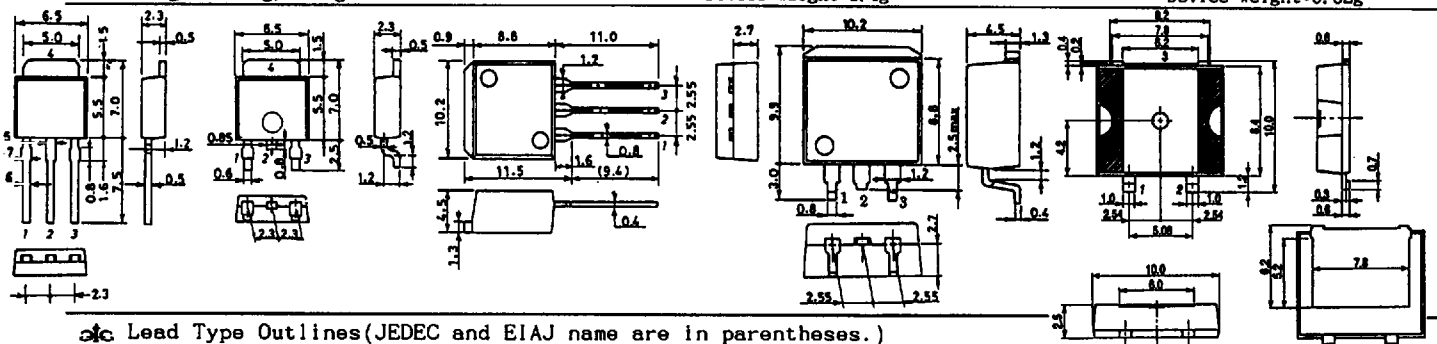
Device weight:0.315g, 0.282g

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)

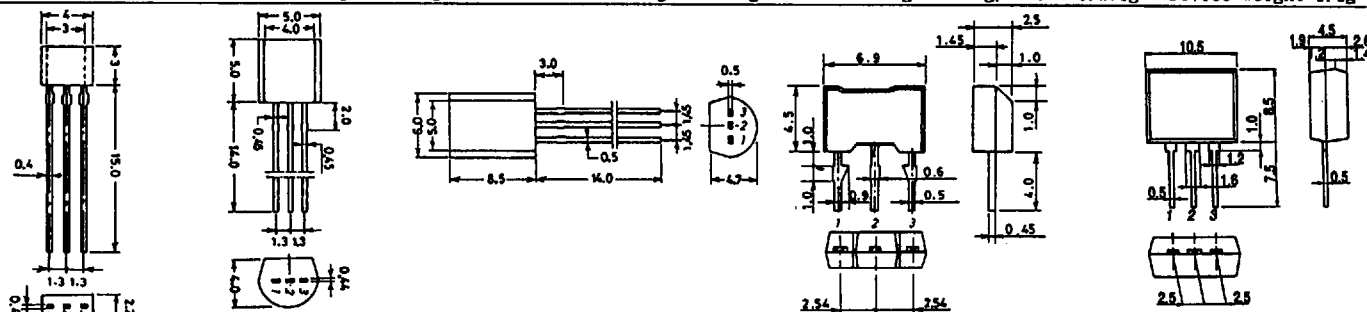
Device weight:0.578g

SANYO:NMP(SC-71)

Device weight:0.21g, AN use:0.275g

SANYO:FLP

Device weight:1.1g

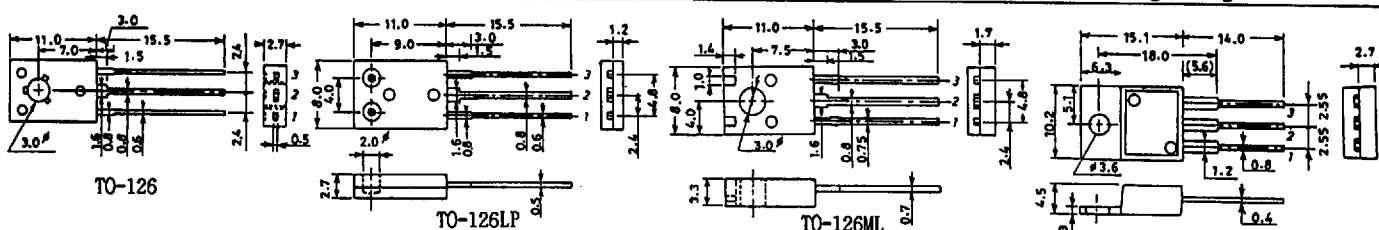


SANYO:TO-126(TO-126, TO-225, SOT-32), TO-126LP, TO-126ML(SOT-82)

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)

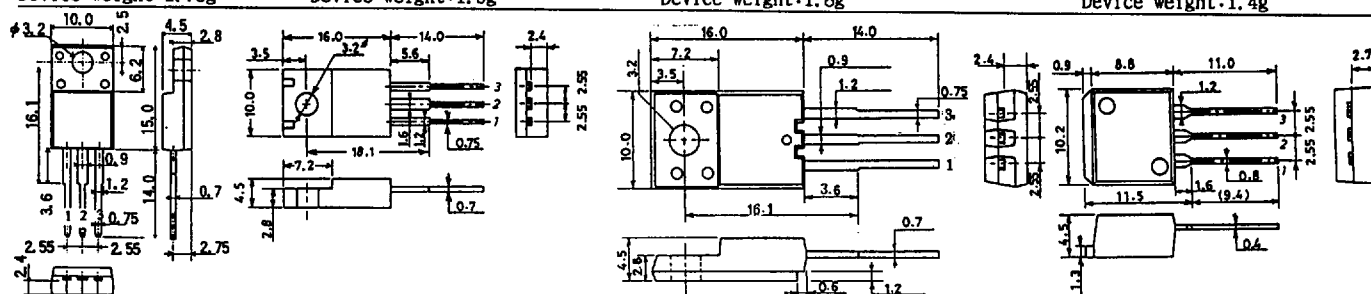
Device weight:1.9g

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

