• TO-92, SPT Types

* New Products ▲ Maintenance part.

Function	Type	V_{CEO} (V)	I_C (mA)	P_C (mW)	f_T (MHz)	Cob (pF)	h_{FE}	Package	
Low rbb' Head Amp	2SA1137	−80	−100	300	90	4.0	120~560	TO-92	Fig. 18
	2SB737	−40	−300	250	100	—	120~560	TO-92	Fig. 18
	2SD786	40	300	250	100	—	120~560	TO-92	Fig. 18
	2SD786S	40	300	250	100	—	120~560	SPT	Fig. 19
Low Noise Amp	2SA825	−80※※	−50	250	180	6.5	82~270	TO-92	Fig. 18
	2SA825S	−80※※	−50	250	180	6.5	82~270	SPT	Fig. 19
	2SA933	−40	−100	300	140	4.0	120~560	TO-92	Fig. 18
	2SA933S	−40	−100	300	140	4.0	120~560	SPT	Fig. 19
	2SA933LN	−40	−100	300	140	4.0	180~560	TO-92	Fig. 18
	2SA933SLN	−40	−100	300	140	4.0	180~560	SPT	Fig. 19
	2SA1038	−120	−50	300	140	3.2	180~560	TO-92	Fig. 18
	2SA1039	−80	−50	300	140	3.2	180~820	TO-92	Fig. 18
	2SA1198	−80	−50	400	140	3.4	180~820	TO-92	Fig. 18
	2SA1198S	−80	−50	300	140	3.4	180~820	SPT	Fig. 19
	2SC1740	40	100	300	180	2.0	120~820	TO-92	Fig. 18
	2SC1740S	40	100	300	180	2.0	120~820	SPT	Fig. 19
	2SC1740LN	40	100	300	180	2.0	180~820	TO-92	Fig. 18
	2SC1740SLN	40	100	300	180	2.0	180~820	SPT	Fig. 19
	2SC2389	120	50	300	140	2.5	180~820	TO-92	Fig. 18
	2SC2390	80	50	300	140	2.5	180~820	TO-92	Fig. 18
	2SC2675	80	100	300	120	3.0	180~820	TO.92	Fig. 18
	2SC2808	100	50	500	140	2.5	180~820	TO-92	Fig. 18
Driver	2SA854	−32	−500	400	200	8.0	82~390	TO-92	Fig. 18
	2SA854S	−32	−500	300	200	8.0	82~390	SPT	Fig. 19
	2SA1199	−40	−700	400	100	12.0	120~560	TO-92	Fig. 18
	2SA1199S	−40	−700	300	100	12.0	120~560	SPT	Fig. 19
	2SA1515	−32	−1000	500	150	20.0	82~390	TO-92	Fig. 18
	2SA1515S	−32	−1000	300	150	20.0	82~390	SPT	Fig. 19
	2SC1741	32	500	400	250	6.5	82~390	TO-92	Fig. 18
	2SC1741S	32	500	300	250	6.5	82~390	SPT	Fig. 19
	2SC1741A	50	500	400	250	5.0	82~390	TO-92	Fig. 18
	2SC1741AS	50	500	300	250	5.0	82~390	SPT	Fig. 19
	2SC2872	40	700	400	100	10.0	120~560	TO-92	Fig. 18
	2SC2872S	40	700	300	100	10.0	120~560	SPT	Fig. 19
	2SC3359	80	300	400	150	5.0	82~390	TO-92	Fig. 18
	2SC3377	32	1000	500	150	15.0	82~390	TO-92	Fig. 18
	2SD1768S	80	1000(I_{CM}2000)	300	100	20.0	82~390	SPT	Fig. 19
Low V_{CE}(sat)	2SD1468	15	1000	400	150	15.0	120~560	TO-92	Fig. 18
	2SD1468S	15	1000	300	150	15.0	120~560	SPT	Fig. 19
Indicator Drive High Voltage Switching	▲2SA820	−180※※	−30	250	50	8.0	56~270	TO-92	Fig. 18
	2SA821	−210※※	−30	250	50	8.0	56~270	TO-92	Fig. 18
	▲2SA832	−130※※	−30	250	50	8.0	56~270	TO-92	Fig. 18
	▲2SC1649	130※※	30	250	60	6.0	56~270	TO-92	Fig. 18
	▲2SC1650	180※※	30	250	60	6.0	56~270	TO-92	Fig. 18
	2SC1651	210※※	30	250	60	6.0	56~270	TO-92	Fig. 18
Chroma	*2SC3415	300	100	500	100	3.0	39~180	TO-92	Fig. 18
Darlington Driver	2SA830	−32※	−300(I_{CM}−1500)	300	200	5.5	1K~	TO-92	Fig. 18
	2SA830S	−32※	−300(I_{CM}−1500)	300	200	5.5	1K~	SPT	Fig. 19
	2SA936	−32※	−300	300	200	4.0	10K~	TO-92	Fig. 18
	2SC1645	32※	300(I_{CM}1500)	300	250	5.0	1K~	TO-92	Fig. 18
	2SC1645S	32※	300(I_{CM}1500)	300	250	5.0	1K~	SPT	Fig. 19
	2SC2062	32	300	300	200	2.5	5K~	TO-92	Fig. 18

※V_{CES} ※※V_{CER}

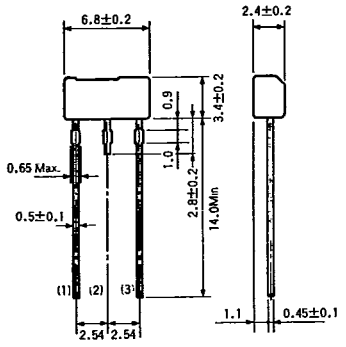
• TO-92L Types

* New Products

Function	Type	V_{CEO} (V)	I_C (A)	P_C (W)	f_T (MHz)	h_{FE}	Package	
Driver	2SA934	−32	−1(I_{CM}−2)	0.75	150	82~390	TO-92L	Fig. 20
	2SA935	−80	−0.7	0.75	100	82~390	TO-92L	Fig. 20
	2SB1010	−32	−2(I_{CM}−3)	0.75	100	82~390	TO-92L	Fig. 20
	2SB1041	−80	−1	0.90	100	82~390	TO-92L	Fig. 20
	2SB1043	−50	−1	0.90	100	82~390	TO-92L	Fig. 20
	*2SB1212	−160	−1.5	0.90	50	56~270	TO-92L	Fig. 20
	2SC2060	32	1(I_{CM}2)	0.75	150	82~390	TO-92L	Fig. 20
	2SC2061	80	0.7(I_{CM}1)	0.75	120	82~390	TO-92L	Fig. 20
	2SD1292	80	1(I_{CM}2)	0.90	100	82~390	TO-92L	Fig. 20
	2SD1384	32	2(I_{CM}2.5)	0.75	100	82~390	TO-92L	Fig. 20
	*2SD1812	160	1.5	0.90	80	56~270	TO-92L	Fig. 20

Dimensions (Unit: mm)

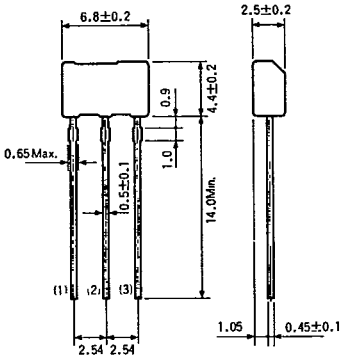
FTL TL4*



(1) Emitter / GND
(2) Collector / OUT
(3) Base / IN

Fig. 13

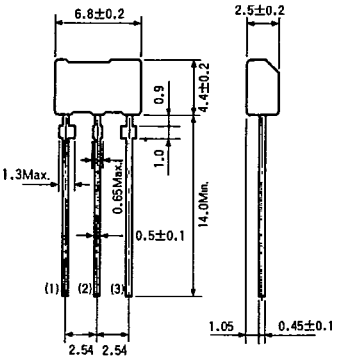
ATV TV2*



(1) Emitter / GND
(2) Collector / OUT
(3) Base / IN

Fig. 14

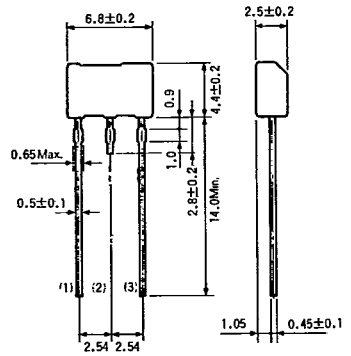
ATV TV3*



(1) Emitter / GND
(2) Collector / OUT
(3) Base / IN

Fig. 15

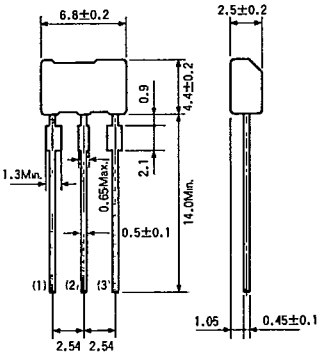
ATV TV4*



(1) Emitter / GND
(2) Collector / OUT
(3) Base / IN

Fig. 16

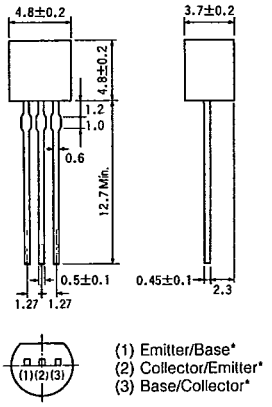
ATV TV6*



(1) Emitter / GND
(2) Collector / OUT
(3) Base / IN

Fig. 17

TO-92

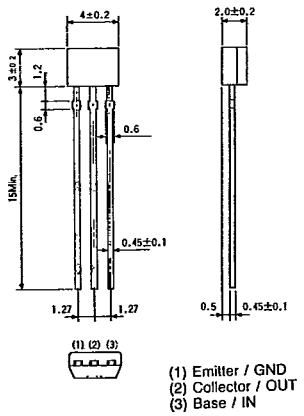


(1) Emitter/Base*
(2) Collector/Emitter*
(3) Base/Collector*

Fig. 18

* Taping specifications can be adjusted for types ATV and FTL. Both types are available in three or four different external dimensions as shown in Figs. 11, 12 and 13 (FTL) and Figs. 14, 15, 16 and 17 (ATV) For *taping specifications* see packaging forms on the page 113

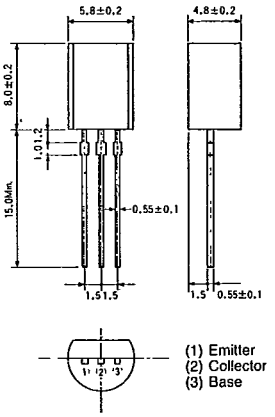
SPT



(1) Emitter / GND
(2) Collector / OUT
(3) Base / IN

Fig. 19

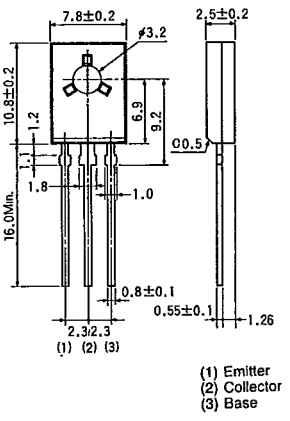
TO-92L



(1) Emitter
(2) Collector
(3) Base

Fig. 20

TO-126



(1) Emitter
(2) Collector
(3) Base

Fig. 21

Dimensions (Unit: mm)

TO-126M

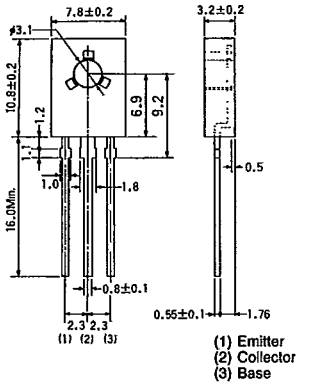


Fig. 22

MRT

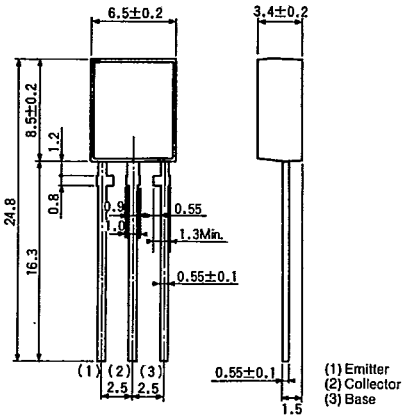
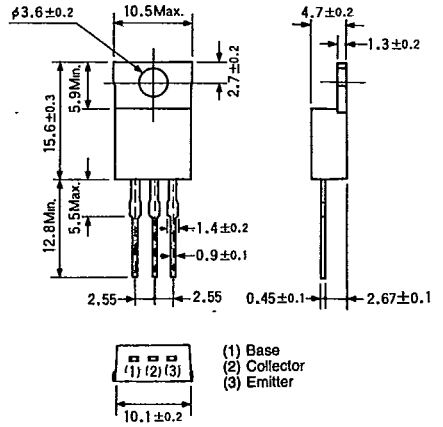


Fig. 23

TO-220

※As of December 1986, these dimensions supercede the previous ones.



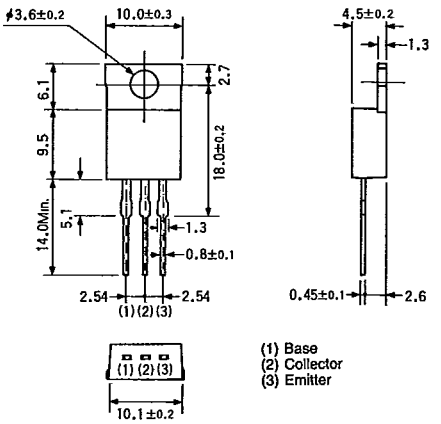


Fig. 24

TO-220FP

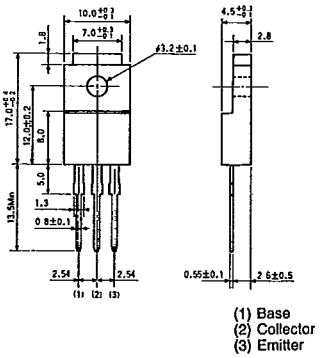


Fig. 25

HRT

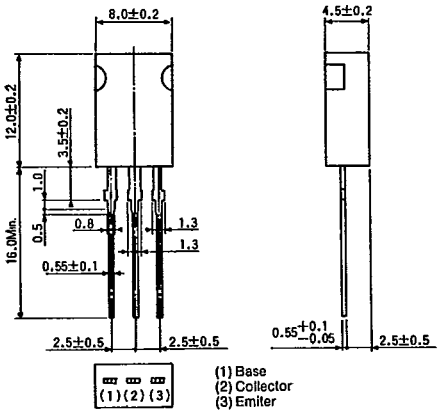


Fig. 26

LF12pin

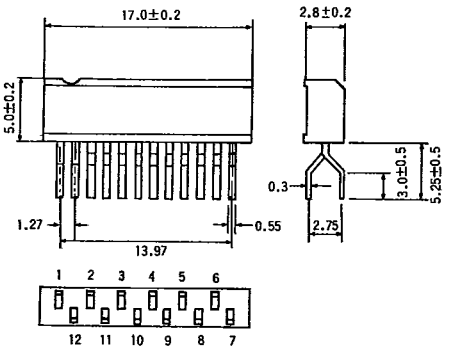


Fig. 27

SIP10pin

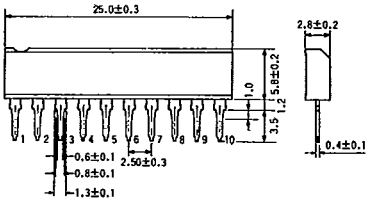


Fig. 28