

TO-92L • TO-92LS • MRT

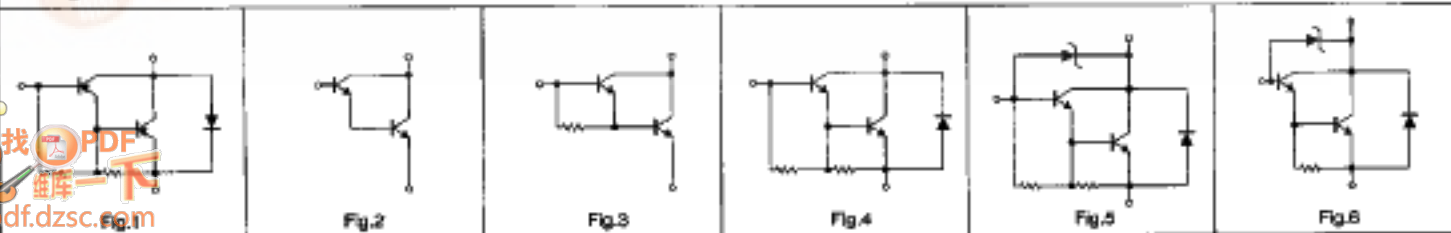
TO-92L is a high power version of TO-92 and TO-92LS is a slimmed TO-92L.

MRT is a 1.2W package power taped transistor designed for use with an automatic placement machine.

Application	Package			V _{CE0} (V) *V _{CEs}	I _c (A)	I _c Max. (A)	P _c (W) (T _a = 25°C)			h _{FE}	h _{FE} Rating sub	V _{CE} (V)	I _c (mA)	Internal circuit
	TO-92L	TO-92LS	MRT				TO-92L	TO-92LS	MRT					
Low Noise	-	2SA1819	-	-160	-0.06	-	-	0.8	-	120~390	Q R	-8	-2	-
	-	2SC4720	-	-150	0.05	-	-	0.8	-	120~390	Q R	8	2	-
Driver	2SA934	2SA1818	2SB1329	-32	-1	-2	0.75	0.9	1.2	82~390	P Q R	-3	-100	-
	2SA935	2SA1902	2SB1330	-80	-0.7	-	0.75	0.9	1.2	82~390	P Q R	-3	-100	-
	2SB1010	2SB1595	2SB1331	-32	-2	-3	0.75	0.9	1.2	82~390	P Q R	-3	-500	-
	2SB1041	-	2SB1332	-80	-1	-	0.9	-	1.2	82~390	P Q R	-3	-100	-
	2SB1043	-	-	-80	-1	-	0.9	-	-	82~390	P Q R	-3	-100	-
	2SB1212	2SB1596	2SB1328	-160	-1.5	-	0.9	0.9	1.2	56~270	N P Q	-5	-100	-
	2SB1425	-	-	-20	-2	-3	1.0	-	-	270~1200	S E U	-6	-500	-
	-	-	2SB1517	-80	-3	-	-	-	1.2	56~390	N P Q R	-3	-500	-
	2SC2060	2SC4719	2SD2005	32	1	2	0.75	0.9	1.2	82~390	P Q R	3	100	-
	2SC2061	2SC5061	2SD2006	80	0.7	1	0.75	0.9	1.2	82~390	P Q R	3	100	-
	2SD1292	-	2SD2008	80	1	2	0.8	-	1.2	82~390	P Q R	3	500	-
	2SD1384	2SD2450	2SD2007	32	2	2.5	0.75	0.9	1.2	82~390	P Q R	3	900	-
	2SD1812	2SD2451	2SD2004	160	1.5	-	0.9	0.9	1.2	56~270	N P Q	5	100	-
-	-	2SD2146	50	3	-	-	-	1.2	56~390	N P Q R	3	500	-	
Low V _{CE(sat)}	-	2SA1903	-	-20	-3	-	-	0.9	-	82~390	P Q R	-2	-100	-
	2SB1374	2SA1820	-	-50	-2	-5	1.0	0.9	-	82~270	P Q	-2	-500	-
	-	2SC5062	-	20	3	-	-	0.9	-	120~560	Q R S	2	100	-
	2SD2069	2SC4721	-	50	2	5	1.0	0.9	-	82~270	P Q	2	500	-
Strobe Flash Low V _{CE(sat)}	2SB1306	-	2SB1482	-20	-5	-10	1.2	-	1.2	82~390	P Q R	-2	-500	-
	2SD1961	-	-	20	5	10	1.2	-	-	120~560	Q R S	2	500	-
Chrome	2SC3259	2SC4722	2SC4243	300	0.1	-	0.75	0.9	1.0	39~180	M N P	10	10	-
High h _{FE}	2SB1425	-	2SB1481	-20	-2	-3	1.0	-	1.2	270~820	S E	-6	-500	-
	2SD2159	-	-	25	2	3	1.0	-	-	390~2700	E U V W	6	500	-
High h _{FE} High V _{CEO}	2SD2172	-	-	25	1.2	2	1	-	-	560~2700	U V W	5	500	-
Darlington	2SB1256	-	2SB1333	-100	-2	-	1.2	-	1.2	1k~10k	-	-2	-1000	Fig.1
	-	-	2SB1515	-80	-4	-	-	-	1.2	1k~10k	-	-3	-2000	Fig.1
	-	-	2SD2452	31±4	2	3	-	-	1.2	1k~10k	-	2	1000	Fig.5
	2SD1809	-	2SD2009	60 ^{typ}	1	-	0.9	-	1.2	2k~	-	3	500	Fig.2
	2SD1929	-	2SD2010	60±10	2	-	1.2	-	1.2	1k~10k	-	2	1000	Fig.5
	2SD1930	-	2SD2011	100	2	-	1.2	-	1.2	1k~10k	-	2	1000	Fig.4
	-	-	2SC4724	100	3	5	-	-	1.2	2k~10k	-	2	1500	Fig.4
	2SD1931	-	-	60±10	1.5	-	0.9	-	-	1k~30k	-	2	1000	Fig.6
	-	-	2SD2308	80	4	-	-	-	1.2	1k~10k	-	3	2000	Fig.4
-	-	2SD2309	60	4	-	-	-	1.2	1k~10k	-	3	2000	Fig.3	
Darlington Driver	-	-	2SD2388	90 ^{+20/-10}	2	3	-	-	1.2	1k~10k	-	2	1000	Fig.5
High Voltage SW	2SA1684	-	-	-400	-0.1	-0.2	0.9	-	-	56~270	N P Q	-10	-10	-
	2SA1780	2SA1884	2SA1809	-400	-0.5	-1	0.9	0.9	1.2	56~270	N P Q	-5	-50	-
	2SA1760	-	-	-400	-0.1	-0.2	0.9	-	-	56~270	N P Q	-10	-10	-
	-	-	2SA1861	-400	-2	-4	-	-	1.2	56~180	N P	-5	-100	-
	2SC4166	-	-	400	0.1	-	0.9	-	-	56~270	N P Q	10	10	-

Note: *Under development

Darlington transistor internal circuit



●Product Designation

- When ordering, specify the type.
- Check each code against the tables shown below.
- Fill a space with the next character.

Special code

- Unit for standard product.
- Factory assigned for custom product.

2 S A 9 3 4

Part No.

T 1 0 3

Packaging

Package	Code	usage indicates	Quantity/Package (pcs)
TO-92L	T103	Ammo box	2,500
	None	Bulk	500
TO-92LS	TE4	Ammo box	3,000
	None	Bulk	1,000
MRT	T105	Ammo box	2,000

h_{FE} Ranking code

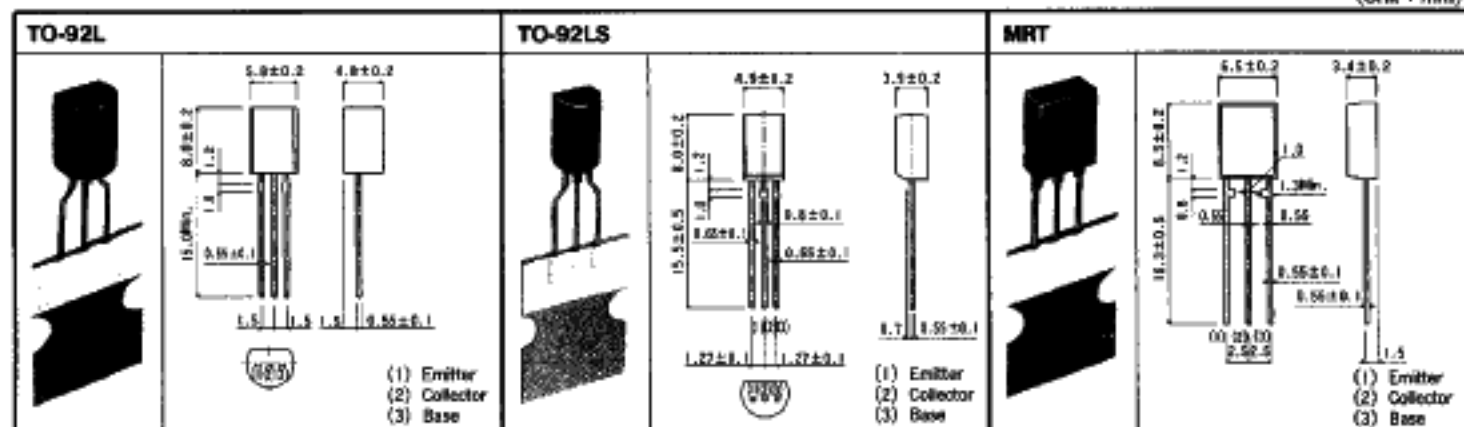
Input h_{FE} rank signal display

- One rank preferred P
- Multiple rank preferred P R

(Min, Max is displayed)

Code	h _{FE} Range	Code	h _{FE} Range
L	27~55	E	300~620
M	38~82	U	500~1200
N	58~120	V	820~1800
P	82~180	W	1200~2700
Q	120~270	A	1k~
R	180~390	B	5k~
S	270~580	C	10k~

(Unit : mm)



Magazine taping of TO-92L and TO-92LS : lead formed as shown below.

●Packaging Specifications

(Unit : mm)

