

Digital Transistors

FTR • FTL • ATR • ATV • SPT


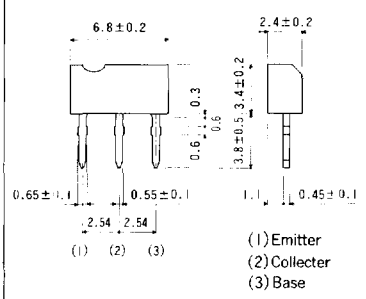

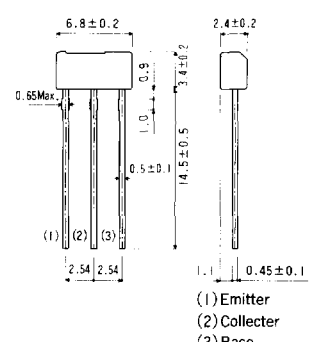

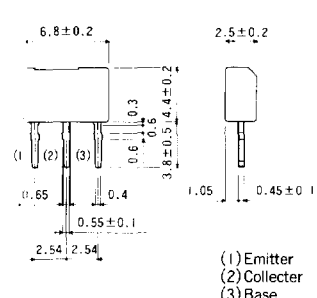

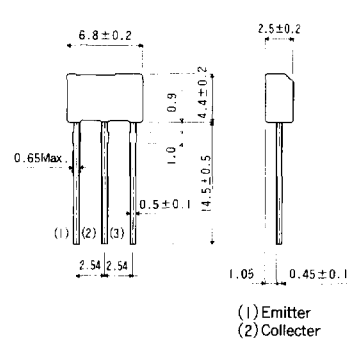
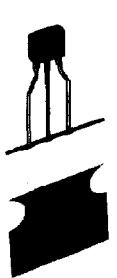
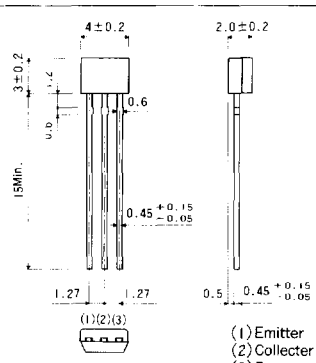
Composite transistors with built-in resistors. In addition to FTR and FTL and ATR and ATV and SPT package variations, internal resistor variations are available for specific applications to meet a wide range of needs.

●Product Designation

D	T	A	1	2	4	E	 	A	
Part No.		Package code						Suffix (Except EM3)	
		Package	Code						
		FTR	F						
		FTL	L						
		ATR	A						
		ATV	V						
		SPT	S						

DTA and DTC of 100mA have suffix "A".
For example, DTA123E of ATR package is expressed as DTA123EAA.

(Unit : mm)

<p>FTR</p> <p>Package code F</p>   <p>(1) Emitter (2) Collector (3) Base</p>	<p>FTL</p> <p>Package code L</p>   <p>(1) Emitter (2) Collector (3) Base</p>
<p>ATR</p> <p>Package code A</p>   <p>(1) Emitter (2) Collector (3) Base</p>	<p>ATV</p> <p>Package code V</p>   <p>(1) Emitter (2) Collector (3) Base</p>
<p>SPT</p> <p>Package code S</p>   <p>(1) Emitter (2) Collector (3) Base</p>	

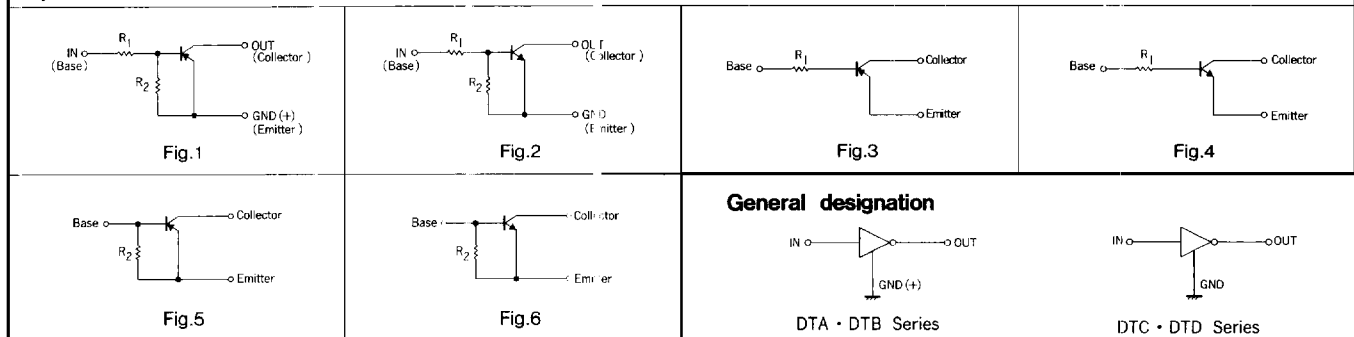
100mA Specifications

PNP Type Fig.1	NPN Type Fig.2	Resistance value		Package					V _{CC} (V)	I _o (mA)	G _i	V _i (V)	I _c (mA)		
		R ₁ (kΩ)	R ₂ (kΩ)	FTR	FTL	ATR	ATV	SPT							
Part No.		Pd=300mW													
DTA1D3R□A	DTC1D3R□A	2.7	1.0	○	○	○	○	○	○	○	50	30	20~	5	5
DTA113Z□A	DTC113Z□A	1.0	10	○	○	○	○	○	○	○	50	100	33~	5	5
DTA114E□A	DTC114E□A	10	10	○	○	○	○	○	○	○	50	50	30~	5	5
DTA114W□A	DTC114W□A	10	4.7	○	○	○	○	○	○	○	50	100	24~	5	10
DTA114Y□A	DTC114Y□A	10	47	○	○	○	○	○	○	○	50	70	68~	5	5
DTA115E□A	DTC115E□A	100	100	○	○	○	○	○	○	○	50	20	82~	5	5
DTA115U□	DTC115U□	100	10	○	○	○	○	○	○	○	50	20	27~	5	5
DTA123E□A	DTC123E□A	2.2	2.2	○	○	○	○	○	○	○	50	100	20~	5	20
DTA123J□A	DTC123J□A	2.2	47	○	○	○	○	○	○	○	50	100	80~	5	10
DTA123Y□A	DTC123Y□A	2.2	10	○	○	○	○	○	○	○	50	100	33~	5	10
DTA124E□A	DTC124E□A	22	22	○	○	○	○	○	○	○	50	30	56~	5	5
DTA124X□A	DTC124X□A	22	47	○	○	○	○	○	○	○	50	50	68~	5	5
DTA143E□A	DTC143E□A	4.7	4.7	○	○	○	○	○	○	○	50	100	20~	5	10
DTA143X□A	DTC143X□A	4.7	10	○	○	○	○	○	○	○	50	100	30~	5	10
DTA143Y□A	DTC143Y□A	4.7	22	○	○	○	○	○	○	○	50	100	56~	5	5
DTA143Z□A	DTC143Z□A	4.7	47	○	○	○	○	○	○	○	50	100	80~	5	10
DTA144E□A	DTC144E□A	47	47	○	○	○	○	○	○	○	50	30	68~	5	5
DTA144V□A	DTC144V□A	47	10	○	○	○	○	○	○	○	50	70	33~	5	5
DTA144W□A	DTC144W□A	47	22	○	○	○	○	○	○	○	50	30	56~	5	5
□ : Package code				F	L	A	V	S							

PNP Type Fig.3	NPN Type Fig.4	Resistance value R ₁ (kΩ)	V _{CE0} (V)	I _c (mA)	Package					Min.	Typ.	Max.	h _{FE} V _{CE} (V)	I _c (mA)	
					FTR	FTL	ATR	ATV	SPT						
Part No.		Pd=300mW													
DTA113T□A	—	1.0	50	100	○	○	○	○	○	○	100	250	600	5	1
DTA114T□A	DTC114T□A	10	50	100	○	○	○	○	○	○	100	250	600	5	1
DTA115T□A	DTC115T□A	100	50	100	○	○	○	○	○	○	100	250	600	5	1
DTA124T□A	DTC124T□A	22	50	100	○	○	○	○	○	○	100	250	600	5	1
DTA125T□	DTC125T□	200	50	100	○	○	○	○	○	○	100	250	600	5	1
DTA143T□A	DTC143T□A	4.7	50	100	○	○	○	○	○	○	100	250	600	5	1
DTA144T□A	DTC144T□A	47	50	100	○	○	○	○	○	○	100	250	600	5	1
□ : Package code				F	L	A	V	S							

PNP Type Fig.5	NPN Type Fig.6	B-E Resistance R ₂ (kΩ)	V _{CE0} (V)	I _c (mA)	Package					Min.	h _{FE} V _{CE} (V)	I _c (mA)	
					FTR	FTL	ATR	ATV	SPT				
Part No.		Pd=300mW											
DTA114G□A	DTC114G□A	10	50	100	○	○	○	○	○	○	30	5	5
DTA115G□A	DTC115G□A	100	50	100	○	○	○	○	○	○	82	5	5
DTA124G□A	DTC124G□A	22	50	100	○	○	○	○	○	○	56	5	5
DTA144G□A	DTC144G□A	47	50	100	○	○	○	○	○	○	68	5	5
□ : Package code				F	L	A	V	S					

Equivalent circuits



Digital Transistors

FTR • FTL • ATR • ATV • SPT

● 500mA Specifications

PNP Type Fig.1	NPN Type Fig.2	Resistance value		Package					V _{CC} (V)	I _C Max. (mA) *	G _i	V _O (V)	I _O (mA)
		R ₁ (kΩ)	R ₂ (kΩ)	FTR Pd=300mW	FTL Pd=300mW	ATR Pd=600mW	ATV Pd=600mW	SPT Pd=300mW					
DTB113E□	DTD113E□	1.0	1.0	○	○	○	○	○	50	500	33~	5	50
DTB113Z□	DTD113Z□	1.0	10	○	○	○	○	○	50	500	56~	5	50
DTB114E□	DTD114E□	10	10	○	○	○	○	○	50	500	56~	5	50
DTB122J□	DTD122J□	0.22	4.7	○	○	○	○	○	50	500	47~	5	50
DTB123E□	DTD123E□	2.2	2.2	○	○	○	○	○	50	500	39~	5	50
DTB123Y□	DTD123Y□	2.2	10	○	○	○	○	○	50	500	56~	5	50
DTB133H□	DTD133H□	3.3	10	○	○	○	○	○	50	500	56~	5	50
DTB143E□	DTD143E□	4.7	4.7	○	○	○	○	○	50	500	47~	5	50

□ : Package code F L A V S

*Characteristics of element transistors

PNP Type Fig.3	NPN Type Fig.4	Resistance value R ₁ (kΩ)	Package					V _{CE0} (V)	I _C (mA)	h _{FE}			V _{CE} (V)	I _C (mA)
			FTR Pd=300mW	FTL Pd=300mW	ATR Pd=600mW	ATV Pd=600mW	SPT Pd=300mW			Min.	Typ.	Max.		
DTB114T□	DTD114T□	10	○	○	○	○	○	40	500	100	250	600	5	50
DTB123T□	DTD123T□	2.2	○	○	○	○	○	40	500	100	250	600	5	50
DTB143T□	DTD143T□	4.7	○	○	○	○	○	40	500	100	250	600	5	50
DTB163T□	DTD163T□	6.8	○	○	○	○	○	40	500	100	250	600	5	50

□ : Package code F L A V S

PNP Type Fig.5	NPN Type Fig.6	B-E Resistance R ₂ (kΩ)	Package					V _{CE0} (V)	I _C (mA)	h _{FE} Min.	V _{CE} (V)	I _C (mA)
			FTR Pd=300mW	FTL Pd=300mW	ATR Pd=600mW	ATV Pd=600mW	SPT Pd=300mW					
DTB114G□	DTD114G□	10	○	○	○	○	○	50	500	56	5	100

□ : Package code F L A V S

● For Muting

PNP Type -	NPN Type Fig.2	Resistance value		Package					V _{CC} (V)	I _C Max. (mA) *	G _i	V _O (V)	I _O (mA)	R _{on} (Ω) Typ.
		R ₁ (kΩ)	R ₂ (kΩ)	FTR Pd=300mW	FTL Pd=300mW	ATR Pd=600mW	ATV Pd=600mW	SPT Pd=300mW						
-	DTC363E□	6.8	6.8	○	○	○	○	○	20	600	50	5	70~	1.1

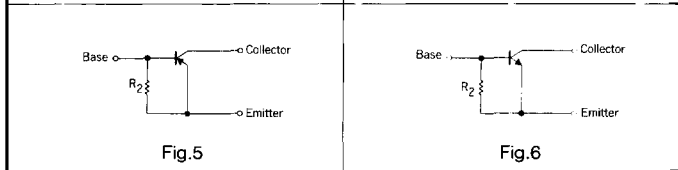
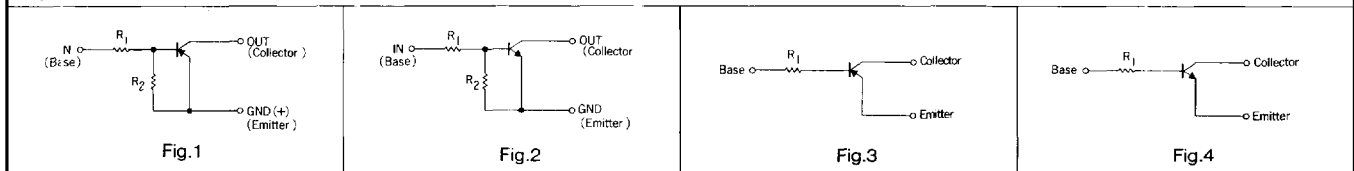
□ : Package code F L A V S

*Characteristics of element transistors

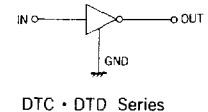
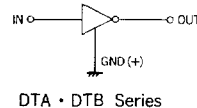
PNP Type -	NPN Type Fig.4	Resistance value R ₁ (kΩ)	Package					V _{CE0} (V)	I _C (mA)	h _{FE}			R _{on} (Ω) Typ.		
			FTR Pd=300mW	FTL Pd=300mW	ATR Pd=600mW	ATV Pd=600mW	SPT Pd=300mW			Min.	Typ.	Max.			
-	DTC314T□	10	○	○	○	○	○	15	600	100	250	600	5	50	1.5
-	DTC323T□	2.2	○	○	○	○	○	15	600	100	250	600	5	50	0.65
-	DTC343T□	4.7	○	○	○	○	○	15	600	100	250	600	5	50	0.95
-	DTC363T□	6.8	○	○	○	○	○	15	600	100	250	600	5	50	1.25

□ : Package code F L A V S

Equivalent circuits



General designation



● Product Designation

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

Part No.

D T A 1 2 4 E S A **T P**

Package code

Package	FTR	FTL	ATR	ATV	SPT
Code	F	L	A	V	S

Special code

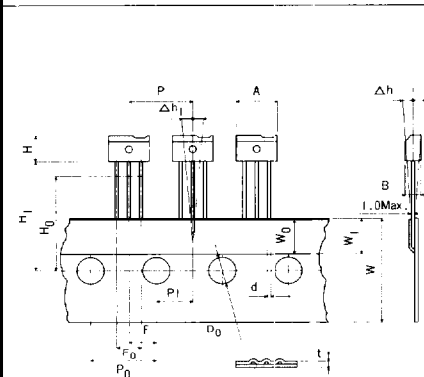
- Omit for standard product.
- Factory assigned for custom product.

Packaging

Package	Code	Package specifications	Quantity/Package (pcs)
FTR	None	Bulk	2,000
	C1	Tube	8,000 (80pcs × 100)
FTL	TL2	Ammo box	2,500
	TL3		
	TL4		
SPT	TP	Ammo box	5,000
	None	Bulk	2,000
ATR	None	Bulk	2,000
	C2	Tube	8,000 (80pcs × 100)
ATV	TV2	Ammo box	2,500
	TV3		
	TV4		

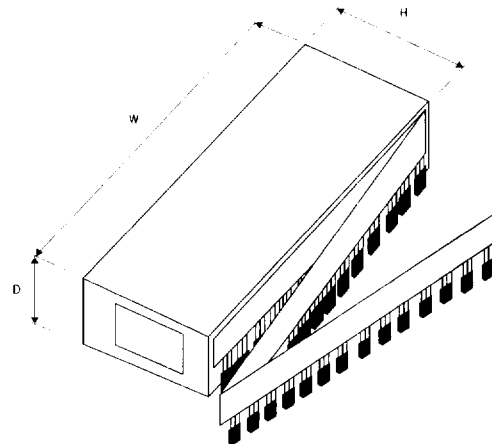
● Packaging Specifications

FTL · ATV taping



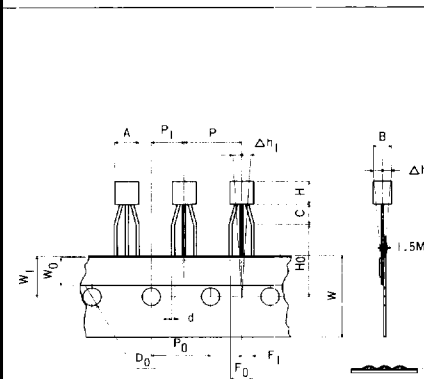
Code	FTL	ATV
A	6.8±0.2	6.8±0.2
B	2.4±0.2	2.5±0.2
C	—	—
H	3.4±0.2	4.4±0.2
d	0.5±0.1	0.5±0.1
P	12.7±1.0	27±1.0
P ₀	12.7±0.2	12.7±0.2
D ₀	φ4.0±0.2	4.0±0.2
P ₁	6.35±0.4	3.5±0.4
F ₀	5.08 ^{+0.8} _{-0.2}	1.08 ^{+0.8} _{-0.2}
F ₁	2.54 ^{+0.4} _{-0.1}	1.54 ^{+0.4} _{-0.1}
W	18.0 ^{+1.0} _{-0.6}	8.0 ^{+1.0} _{-0.6}
H ₀	17.1±0.5*2	11.1±0.5*2
H ₁	19.0±0.5*1	11.0±0.5*1
W ₀	6.0±0.5	6.0±0.5
W ₁	9.0±0.5	9.0±0.5
P ₂₀	1.0Max.	1.0Max.
Δh	0±1.0	0±1.0
Δh ₁	0±1.0	0±1.0
t	0.7±0.2	0.7±0.2

FTL · ATV · TO-92 · SPT Ammo box



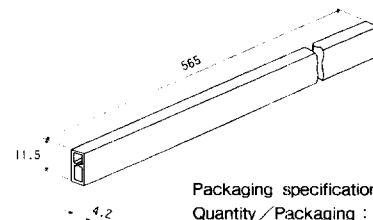
	W	H	D
FTL	334	280	41
ATV	334	280	41
TO-92	340	262	40
SPT	330	232	40

TO-92 · SPT Taping



Code	TO-92	SPT
A	4.6±0.2	4.0±0.2
B	3.7±0.2	2.0±0.2
C	2.5Min.	3.0Min.
H	5.2Max.	3.0±0.2
d	0.5±0.1	0.45 ^{+0.15} _{-0.05}
P	12.7±0.5	27±1.0
P ₀	12.7±0.3	27±0.2
D ₀	φ4.0±0.2	4.0±0.2
P ₁	6.35±0.5	3.5±0.5
F ₀	5.0 ^{+0.8} _{-0.2}	1.0 ^{+0.8} _{-0.2}
F ₁	2.5 ^{+0.4} _{-0.1}	1.5 ^{+0.4} _{-0.1}
W	18.0 ^{+1.0} _{-0.6}	11.0 ^{+1.0} _{-0.6}
H ₀	16.0±0.5	6.0±0.5
H ₁	—	—
W ₀	6.0±0.5	6.0±0.5
W ₁	9.0±0.5	9.0±0.5
P ₂₀	1.0Max.	1.0Max.
Δh	0±1.0	0±1.0
Δh ₁	0±0.5	0±1.0
t	0.7±0.2	0.7±0.2

FTR Container tube



Packaging specification code : C1
Quantity/Package : 80 pcs