

# Digital Transistors

Transistors with built-in resistors.

Available in various packages with a variety of built-in resistors to meet a wide range of needs.

## ●Product Designation

D	T	A	1	2	3	E		A
Part No.			Package code			Suffix (Except EM3)		
		Package			Code			
		EM3			E			
		UMT			U			
		SST			C			
		SMT			K			
		MPT			P			

EM3 of 100mA version has no suffix "A".  
DTA123E of UMT package should be denoted as DTA123EUA.

## EM3 · UMT · SST · SMT

### ●100mA Specifications

PNP Type Fig.1	NPN Type Fig.2	Resistance value		Package				V <sub>CC</sub> (V)	I <sub>O</sub> (mA)	G <sub>1</sub>	V <sub>O</sub> (V)	I <sub>O</sub> (mA)
		R <sub>1</sub> (kΩ)	R <sub>2</sub> (kΩ)	EM3* Pd=150mW	UMT* Pd=200mW	SST Pd=200mW	SMT					
DTA123E□A	DTC123E□A	2.2	2.2	○	○	○	○	50	100	20~	5	20
DTA143E□A	DTC143E□A	4.7	4.7	○	○	○	○	50	100	20~	5	10
DTA114E□A	DTC114E□A	10	10	○	○	○	○	50	50	30~	5	5
DTA124E□A	DTC124E□A	22	22	○	○	○	○	50	30	56~	5	5
DTA144E□A	DTC144E□A	47	47	○	○	○	○	50	30	68~	5	5
DTA115E□A	DTC115E□A	100	100	○	○	○	○	50	20	82~	5	5
DTA113Z□A	DTC113Z□A	1.0	10	○	○	○	○	50	100	33~	5	5
DTA123Y□A	DTC123Y□A	2.2	10	○	○	○	○	50	100	33~	5	10
DTA143Y□A	DTC143Y□A	4.7	22	○	○	○	○	50	100	56~	5	5
DTA123J□A	DTC123J□A	2.2	47	○	○	○	○	50	100	80~	5	10
DTA143X□A	DTC143X□A	4.7	10	○	○	○	○	50	100	30~	5	10
DTA143Z□A	DTC143Z□A	4.7	47	○	○	○	○	50	100	80~	5	10
DTA114W□A	DTC114W□A	10	4.7	○	○	○	○	50	100	24~	5	10
DTA114Y□A	DTC114Y□A	10	47	○	○	○	○	50	70	68~	5	5
DTA124X□A	DTC124X□A	22	47	○	○	○	○	50	50	68~	5	5
*DTA115U□	*DTC115U□	100	10	—	○	○	○	50	20	27~	5	5
DTA144V□A	DTC144V□A	47	10	○	○	○	○	50	70	33~	5	5
DTA144W□A	DTC144W□A	47	22	○	○	○	○	50	30	56~	5	5
DTA1D3R□A	DTC1D3R□A	2.7	1.0	○	○	○	○	50	30	20~	5	30

□ : Package code

PNP Type Fig.3	NPN Type Fig.4	Resistance value		Package				V <sub>CE0</sub> (V)	I <sub>C</sub> (mA)	Min.	Typ.	Max.	h <sub>FE</sub>	
		R <sub>1</sub> (kΩ)		EM3* Pd=150mW	UMT* Pd=200mW	SST Pd=200mW	SMT						V <sub>CE</sub> (V)	I <sub>C</sub> (mA)
DTA143T□A	DTC143T□A	4.7		○	○	○	○	50	100	100	250	600	5	1
DTA114T□A	DTC114T□A	10		○	○	○	○	50	100	100	250	600	5	1
DTA124T□A	DTC124T□A	22		○	○	○	○	50	100	100	250	600	5	1
DTA144T□A	DTC144T□A	47		○	○	○	○	50	100	100	250	600	5	1
DTA115T□A	DTC115T□A	100		○	○	○	○	50	100	100	250	600	5	1
*DTA125T□	*DTC125T□	200		—	○	○	○	50	100	100	250	600	5	1
DTA113T□A	—	1.0		○	○	○	○	50	100	100	250	600	5	1

□ : Package code

PNP Type Fig.5	NPN Type Fig.6	B-E Resistance		Package				V <sub>CE0</sub> (V)	I <sub>C</sub> (mA)	Min.	h <sub>FE</sub>	
		R <sub>2</sub> (kΩ)		EM3* Pd=150mW	UMT* Pd=200mW	SST Pd=200mW	SMT				V <sub>CE</sub> (V)	I <sub>C</sub> (mA)
DTA114G□A	DTC114G□A	10		○	○	○	○	50	100	30	5	5
DTA124G□A	DTC124G□A	22		○	○	○	○	50	100	56	5	5
DTA144G□A	DTC144G□A	47		○	○	○	○	50	100	68	5	5
DTA115G□A	DTC115G□A	100		○	○	○	○	50	100	82	5	5

□ : Package code

- Notes : 1. \*With recommended land pattern laid out.  
2. Specification codes for PNP and NPN are omitted.  
3. \*Not for EM3.  
4. EM3 has no suffix "A".

### ●Low ON output type

PNP Type Fig.1	NPN Type —	Resistance value		Package				V <sub>CC</sub> (V)	I <sub>O</sub> (mA)	G <sub>1</sub>	V <sub>O</sub> (on) (V)				
		R <sub>1</sub> (kΩ)	R <sub>2</sub> (kΩ)	EM3* Pd=150mW	UMT* Pd=200mW	SST Pd=200mW	SMT				V <sub>O</sub> (V)	I <sub>O</sub> (mA)	V <sub>O</sub> (V)	I <sub>O</sub> (mA)	
DTA214Y□	—	10	47	—	○	○	○	30	70	68	5	5	0.3	50	2.5

□ : Package code

SMT · MPT · SST

● 500mA Specifications

PNP Type Fig.1	NPN Type Fig.2	Resistance value		Vcc (V)	Ic Max.* (mA)	G <sub>i</sub>	V <sub>o</sub> (V)	I <sub>o</sub> (mA)	Package
		R <sub>1</sub> (kΩ)	R <sub>2</sub> (kΩ)						
DTB113E□	DTD113E□	1.0	1.0	50	500	33~	5	50	SMT · SST
DTB123E□	DTD123E□	2.2	2.2	50	500	39~	5	50	
DTB143E□	DTD143E□	4.7	4.7	50	500	47~	5	50	
DTB114E□	DTD114E□	10	10	50	500	56~	5	50	
DTB122J□	DTD122J□	0.22	4.7	50	500	47~	5	50	
DTB113Z□	DTD113Z□	1.0	10	50	500	56~	5	50	
DTB123Y□	DTD123Y□	2.2	10	50	500	56~	5	50	
DTB133H□	DTD133H□	3.3	10	50	500	56~	5	50	

PNP Type Fig.3	NPN Type Fig.4	Resistance value R <sub>1</sub> (kΩ)	V <sub>CEO</sub> (V)	Ic (mA)	Min.	Typ.	h <sub>FE</sub> Max.	V <sub>CE</sub> (V)	Ic (mA)	Package
DTB143T□	DTD143T□	4.7	40	500	100	250	600	5	50	
DTB163T□	DTD163T□	6.8	40	500	100	250	600	5	50	
DTB114T□	DTD114T□	10	40	500	100	250	600	5	50	

PNP Type Fig.5	NPN Type Fig.6	BE Resistance R <sub>2</sub> (kΩ)	V <sub>CEO</sub> (V)	Ic (mA)	Min.	h <sub>FE</sub>		Ic (mA)	Package
						V <sub>CE</sub> (V)	Ic (mA)		
DTB114G□	DTD114G□	10	50	500	56	5	100	SMT · SST	

Notes : 1. \*Characteristics of component transistors. 2. Specification codes for PNP and NPN are omitted.

● For Muting

PNP Type -	NPN Type Fig.2	Resistance value		Vcc (V)	Ic Max.* (mA)	G <sub>i</sub>	V <sub>o</sub> (V)	I <sub>o</sub> (mA)	R <sub>on</sub> (Ω) Typ.	Package
		R <sub>1</sub> (kΩ)	R <sub>2</sub> (kΩ)							
-	DTC363E□	6.8	6.8	20	600	70~	5	50	1.0	SMT · SST

PNP Type -	NPN Type Fig.4	Resistance value R <sub>1</sub> (kΩ)	V <sub>CEO</sub> (V)	Ic (mA)	Min.	Typ.	h <sub>FE</sub> Max.	V <sub>CE</sub> (V)	Ic (mA)	R <sub>on</sub> (Ω) Typ.	Package
-	DTC343T□	4.7	15	600	100	250	600	5	50	0.95	
-	DTC363T□	6.8	15	600	100	250	600	5	50	1.25	
-	DTC314T□	10	15	600	100	250	600	5	50	1.5	

Note : \*Characteristics of component transistors.

● For Semipower

Fig.7 Part No.	Resistance value		Vcc (V)	Ic (A)	Pd* (W)	G <sub>i</sub>	V <sub>o</sub> (V)	I <sub>o</sub> (A)	Package
	R <sub>1</sub> (Ω)	R <sub>2</sub> (kΩ)							
DTDM12ZP	100	1	30	3	1.5	68~	2	0.5	MPT

Fig.8 Part No.	BE Resistance R <sub>2</sub> (kΩ)	V <sub>CEO</sub> (V)	Ic (A)	Pd* (W)	h <sub>FE</sub>	V <sub>CE</sub> (V)	Ic (A)	Package

Fig.9 Part No.	Resistance value		Vcc (V)	Ic (A)	Pd* (W)	G <sub>i</sub>	V <sub>o</sub> (V)	I <sub>o</sub> (A)	Package
	R <sub>1</sub> (kΩ)	R <sub>2</sub> (kΩ)							
DTDG23YP	2.2	10	60 ± 10	1	1.5	300~	2	0.5	MPT

Fig.10 Part No.	BE Resistance R <sub>2</sub> (kΩ)	V <sub>CEO</sub> (V)	Ic (A)	Pd* (W)	h <sub>FE</sub>	V <sub>CE</sub> (V)	Ic (A)	Package

Notes : 1. \*Characteristics of component transistors. 2. \*Package mounted on ceramic 40×40×0.7mm

Digital Transistors

TRANSISTORS

Land pattern

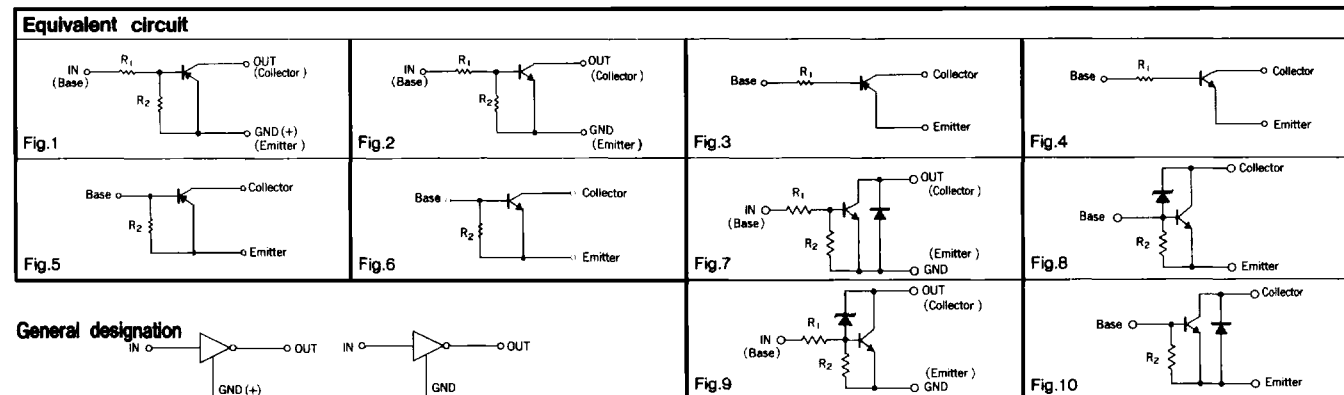
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The Class and basic rating limits for Standard and Semi-Standard Products Units

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Part Marking

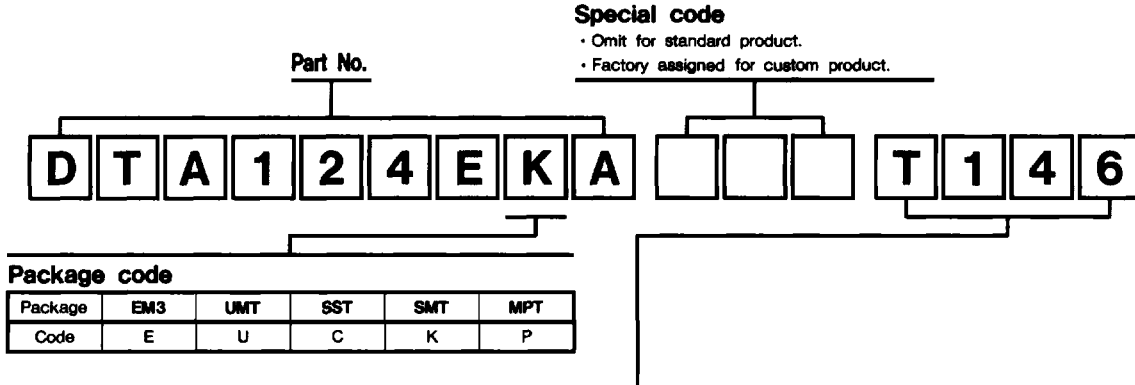
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# Digital Transistors

## ●Product Designation

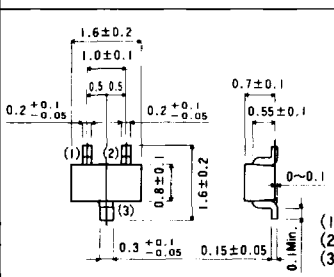
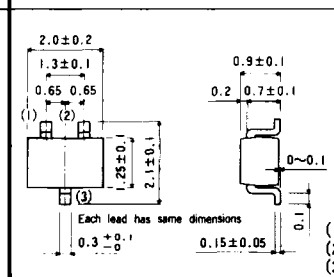
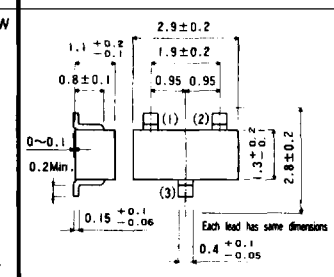



- When ordering, specify the type.
- Check each code against the tables shown below.
- Fill a space with the next character.



## Packaging

Package	Code	Packaging type	Packaging style	Direction	Quantity/Package (pcs)	Quantity/Unit (pcs)
EM3	TL	Taping	Embossed reel tape	1 Pin side on sprocket hole side	3,000	-
	TR			2 Pins side on sprocket hole side		
UMT	T106	Taping	Embossed reel tape	1 Pin side on sprocket hole side	3,000	-
	T107			2 Pins side on sprocket hole side		
SST	T116	Taping	Embossed reel tape	1 Pin side on sprocket hole side	3,000	-
	T117			2 Pins side on sprocket hole side		
SMT	T146	Taping	Embossed reel tape	1 Pin side on sprocket hole side	3,000	-
	T147			2 Pins side on sprocket hole side		
MPT	T100	Taping	Embossed reel tape	3 Pins side on sprocket hole side	1,000	-
	T101			Fin on sprocket hole side		

(Unit : mm)

Package	EM3	UMT	SST (U. S. / European SOT-23)
	Package code E	Package code U	Package code C
Dimensions	 <p>TOP VIEW</p> <p>(1) Emitter (2) Base (3) Collector</p>	 <p>TOP VIEW</p> <p>(1) Emitter (2) Base (3) Collector</p>	 <p>TOP VIEW</p> <p>(1) Emitter (2) Base (3) Collector</p>
Actual size	-	-	-
Enlarged (×3.0)			

(Unit : mm)

Package	SMT (SC-59/Japanese SOT-23)	MPT (SOT-89)
	Package code K	Package code P
Dimensions		
Actual size		
Enlarged (×3.0)		

●Packaging Specifications

(Unit : mm)

Reel	Tape																							
EM3 · UMT · SST · SMT																								
	<table border="1"> <thead> <tr> <th>Package</th> <th>Code</th> <th>Package</th> <th>Code</th> </tr> </thead> <tbody> <tr> <td>EM3</td> <td>TR</td> <td>EM3</td> <td>TL</td> </tr> <tr> <td>UMT</td> <td>T107</td> <td>UMT</td> <td>T106</td> </tr> <tr> <td>SST</td> <td>T117</td> <td>SST</td> <td>T116</td> </tr> <tr> <td>SMT</td> <td>T147</td> <td>SMT</td> <td>T146</td> </tr> </tbody> </table>	Package	Code	Package	Code	EM3	TR	EM3	TL	UMT	T107	UMT	T106	SST	T117	SST	T116	SMT	T147	SMT	T146			
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	<table border="1"> <thead> <tr> <th rowspan="2">Package</th> <th colspan="3">Size</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>EM3</td> <td>1.8±0.1</td> <td>1.8±0.1</td> <td>0.9±0.2</td> </tr> <tr> <td>UMT</td> <td>2.2±0.1</td> <td>2.4±0.1</td> <td>1.15±0.1</td> </tr> <tr> <td>SST</td> <td>3.15±0.1</td> <td>2.85±0.1</td> <td>1.4±0.1</td> </tr> <tr> <td>SMT</td> <td>3.1±0.1</td> <td>3.2±0.1</td> <td>1.35±0.1</td> </tr> </tbody> </table>	Package	Size			A	B	C	EM3	1.8±0.1	1.8±0.1	0.9±0.2	UMT	2.2±0.1	2.4±0.1	1.15±0.1	SST	3.15±0.1	2.85±0.1	1.4±0.1	SMT	3.1±0.1	3.2±0.1	1.35±0.1
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MPT (SOT-89)	