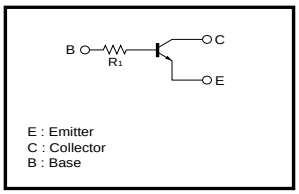
Digital transistors (built in resistor)

DTC115TH / DTC115TUA / DT115TKA / DTC115TSA

●Features

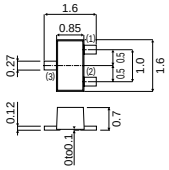
1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input, and parasitic effects are almost completely eliminated.
3) Only the on / off conditions need to be set for operation, making device design easy.
4) Higher mounting densities can be achieved.

●Equivalent circuit



●External dimensions (Units : mm)

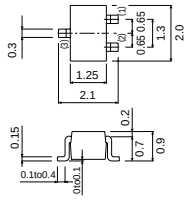
DTC115TH



ROHM : EMT3H
EIAJ : SC-89

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

DTC115TUA

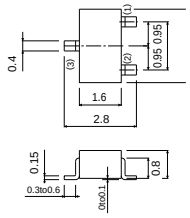


ROHM : UMT3
EIAJ : SC-70

Each lead has same dimensions

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

DTC115TKA

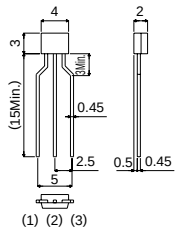


ROHM : SMT3
EIAJ : SC-59

Each lead has same dimensions

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

DTC115TSA



ROHM : SPT
EIAJ : SC-72

Taping specifications

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

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	50	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	5	V
Collector current		I_C	100	mA
Collector power dissipation	DTC115TH	Pc	150	mW
	DTC115TUA / DTC115TKA		200	
	DTC115TSA		300	
Junction temperature		Tj	150	˚C
Storage temperature		Tstg	−55~+150	˚C

●Packaging, marking, and packaging specifications

Part No.	DTC115TH	DTC115TUA	DTC115TKA	DTC115TSA
Package	EMT3H	UMT3	SMT3	SPT
Marking	09	09	09	-
Packaging code	T2L	T106	T146	TP
Basic ordering unit (pieces)	8000	3000	3000	5000

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	-	-	V	I_C=50μA
Collector-emitter breakdown voltage	BV_{CEO}	50	-	-	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	-	-	V	I_E=50μA
Collector cutoff current	I_{CBO}	-	-	0.5	μA	V_{CB}=50V
Emitter cutoff current	I_{EBO}	-	-	0.5	μA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.3	V	I_C/I_B=1mA/0.1mA
DC current transfer ratio	h_{FE}	100	250	600	-	I_C=1mA, V_{CE}=5V
Input resistance	R_1	70	100	130	kΩ	-
Transition frequency	f_T	-	250	-	MHz	V_{CE}=10V, I_E=−5mA, f=100MHz ✻

✻ Transition frequency of the device.