



Digital transistors (built-in resistors)

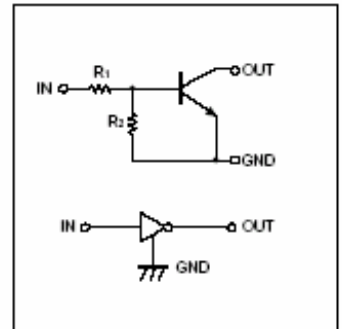
**DTC113ZE/DTC113ZUA
DTC113ZKA /DTC113ZCA /DTC113ZSA**

DIGITAL TRANSISTOR (NPN)

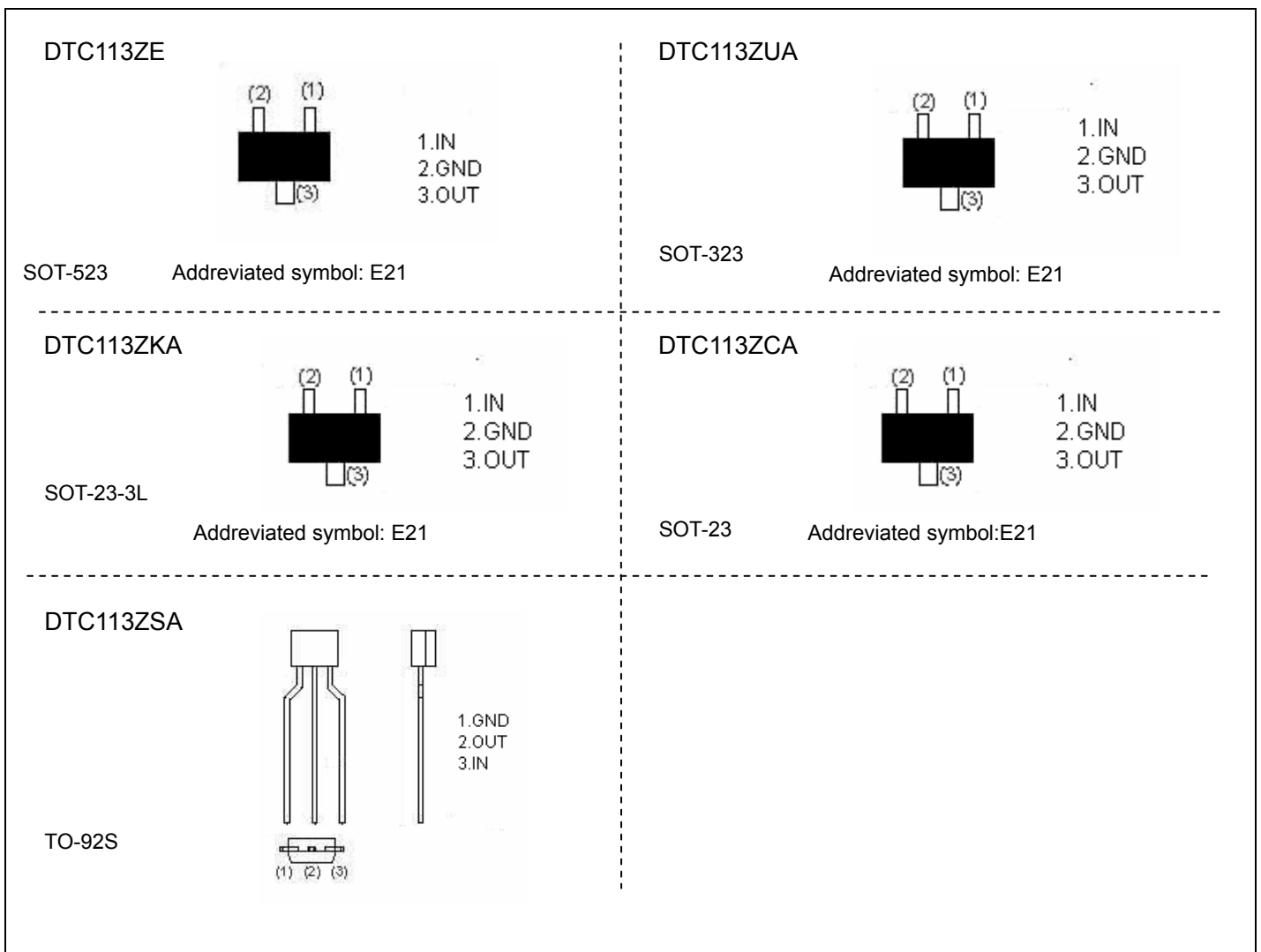
FEATURES

1. Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
2. The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects
3. Only the on/off conditions need to be set for operation, making device design easy

●Equivalent circuit



PIN CONNENCTIONS AND MARKING



Absolute maximum ratings(Ta=25°C)

Parameter	Symbol	Limits (DTC113Z□)					Unit
		E	UA	CA	KA	SA	
Supply voltage	V _{CC}	50					V
Input voltage	V _{IN}	-5~+10					V
Output current	I _O	100					mA
	I _{C(MAX)}	100					
Power dissipation	Pd	150		200		300	mW
Junction temperature	T _j	150					°C
Storage temperature	T _{stg}	-55~150					°C

Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input voltage	V _{I(off)}	0.3			V	V _{CC} =5V ,I _O =100μA
	V _{I(on)}			3		V _O =0.3V ,I _O =20mA
Output voltage	V _{O(on)}			0.3	V	I _O /I _I =10mA/0.5mA
Input current	I _I			7.2	mA	V _I =5V
Output current	I _{O(off)}			0.5	μA	V _{CC} =50V, V _I =0
DC current gain	G _I	33				V _O =5V ,I _O =5mA
Input resistance	R ₁	0.7	1	1.3	KΩ	
Resistance ratio	R ₂ /R ₁	8	10	12		
Transition frequency	f _T		250		MHz	V _{CE} =10V ,I _E =-5mA,f=100MHz