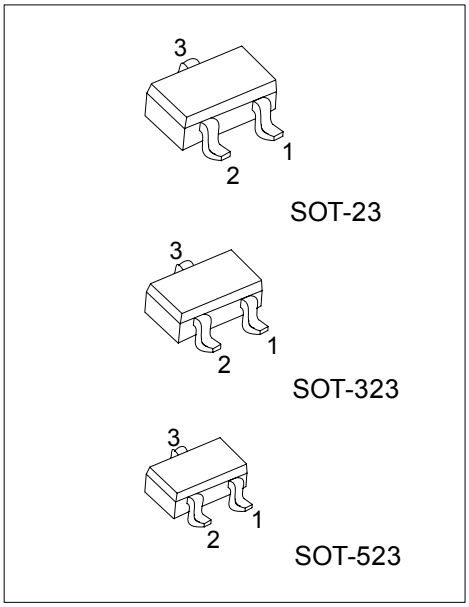
DTD113Z

NPN SILICON TRANSISTOR

NPN DIGITAL TRANSISTOR (BUILT- IN BIAS RESISTORS)

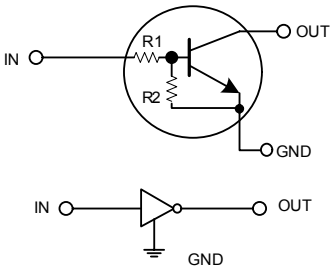


*Pb-free plating product number:DTD113ZL

■ FEATURES

* Built-in bias resistors that implies easy ON/OFF applications.
* The bias resistors are thin-film resistors with complete isolation to allow negative input.

■ EQUIVALENT CIRCUIT



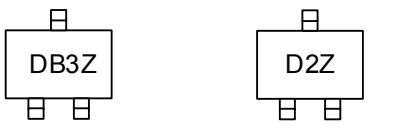
■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
DTD113Z-AE3-R	DTD113ZL-AE3-R	SOT-23	G	I	O	Tape Reel
DTD113Z-AL3-R	DTD113ZL-AL3-R	SOT-323	G	I	O	Tape Reel
DTD113Z-AN3-R	DTD113ZL-AN3-R	SOT-523	G	I	O	Tape Reel

DTD113ZL-AE3-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523
(3)Lead Plating	(3) L: Lead Free Plating, Blank: Pb/Sn

■ MARKING



For SOT-23/SOT-323 Package

For SOT-523 Package

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	50	V
Input Voltage		V_{IN}	-5 ~ +10	V
Output Current		I_{OUT}	500	mA
Power Dissipation	SOT-23/SOT-323	P_C	200	mW
	SOT-523		150	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

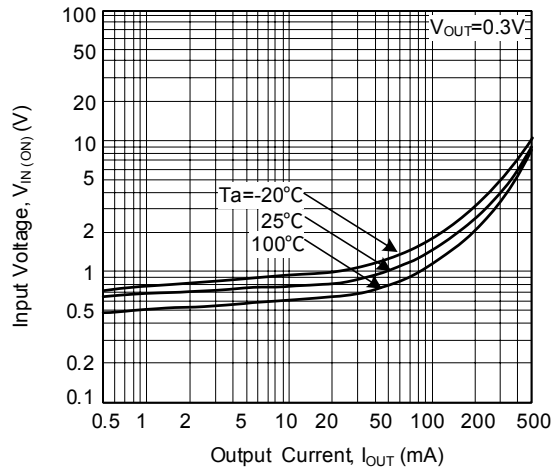
■ ELECTRICAL SPECIFICATIONS (Ta=25°C, unless others specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	V_{CC} =5V, I_{OUT} =100μA			0.3	V
	$V_{IN(ON)}$	V_{OUT} =0.3V, I_{OUT} =20mA	1.5			
Output Voltage	$V_{OUT(ON)}$	I_{OUT}/I_{IN} =50mA/2.5mA		0.1	0.3	V
Input Current	I_{IN}	V_{IN}=5V			7.2	mA
Output Current	$I_{OUT(OFF)}$	V_{CC} =50V, V_{IN} =0V			0.5	μA
DC Current Gain	h_{FE}	V_{OUT} =5V, I_{OUT} =50mA	82			
Input Resistance	R_1		0.7	1	1.3	KΩ
Resistor Ratio	R_2/R_1		8	10	12	
Transition Frequency	f_T	V_{CE} =10V, I_E =−50mA, f=100MHz		200		MHz

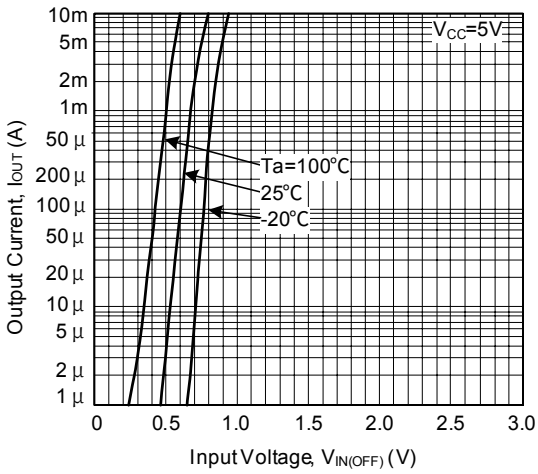
Note: Transition frequency of the device

■ TYPICAL CHARACTERISTICS

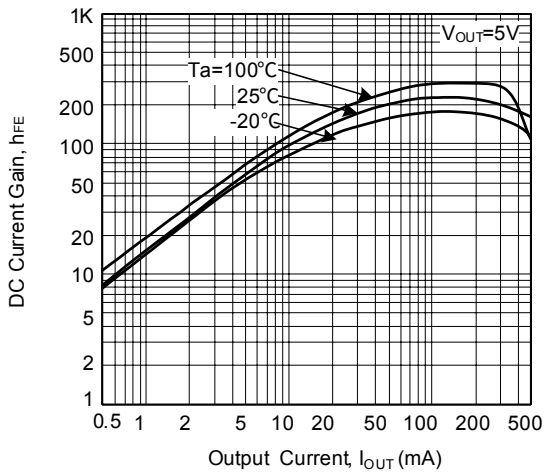
Input Voltage vs. Output Current
(ON Characteristics)



Output Current vs. Input Voltage
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current