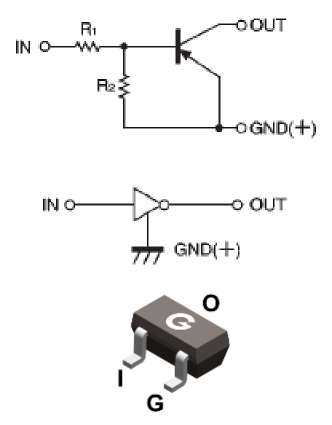
Digital Transistor

DTA($R_1 \neq R_2$ SERIES)E

FEATURES

HF

- Epitaxial planar die construction
- Complementary NPN types available(DTC)
- Built-in biasing resistors, $R_1 \neq R_2$
- Also available in lead free version



SOT-523

APPLICATIONS

- The PNP style digital transistor

ORDERING INFORMATION

Type No.	Marking	Package Code
DTA113ZE	E11	SOT-523
DTA114WE	74	SOT-523
DTA114YE	54	SOT-523
DTA123JE	E32	SOT-523
DTA123YE	52	SOT-523
DTA143XE	33	SOT-523
DTA143ZE	E13	SOT-523

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		-50	V
V_{IN}	Input Voltage	DTA113ZE	+5 to -10	V
		DTA114WE	+10 to -30	
		DTA114YE	+6 to -40	
		DTA123JE	+5 to -12	
		DTA123YE	+5 to -12	
		DTA143XE	+7 to -20	
		DTA143ZE	+5 to -30	
I_O	Output Current	DTA113ZE	-100	mA
		DTA114WE	-100	
		DTA114YE	-70	
		DTA123JE	-100	
		DTA123YE	-100	
		DTA143XE	-100	
		DTA143ZE	-100	
I_C(Max.)	Output current	ALL	-100	mA
P_D	Power Dissipation		150	mW

$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air *1	306	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case *1	152	℃/W
$R_{\theta JL}$	Thermal Resistance, Junction to Lead *1	61	℃/W
T_j,T_{stg}	Operating and Storage and Temperature Range	-55 to +150	℃

Note 1: The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter		**Symbol**	**Test conditions**	**MIN**	**TYP**	**MAX**	**UNIT**
Input Voltage	DTA113ZE	$V_{I(off)}$	$V_{CC}=-5V, I_O=-100\mu A$	-0.3	-	-	V
	DTA114WE			-0.8			
	DTA114YE			-0.3			
	DTA123JE			-0.5			
	DTA123YE			-0.3			
	DTA143XE			-0.3			
	DTA143ZE			-0.5			
Input Voltage	DTA113ZE	$V_{I(on)}$	$V_O=-0.3V, I_O=-20mA$	-	-	-3	
	DTA114WE		$V_O=-0.3V, I_O=-2mA$			-3	
	DTA114YE		$V_O=-0.3V, I_O=-1mA$			-1.4	
	DTA123JE		$V_O=-0.3V, I_O=-5mA$			-1.1	
	DTA123YE		$V_O=-0.3V, I_O=-20mA$			-3.0	
	DTA143XE		$V_O=-0.3V, I_O=-20mA$			-2.5	
	DTA143ZE		$V_O=-0.3V, I_O=-5mA$			-1.3	
Output Voltage	DTA123JE	$V_{O(on)}$	$I_o/I_I=-5mA/-0.25mA$	-	-0.1	-0.3	V
	DTA143ZE						
	DTA114YE						
	ALL Others		$I_o/I_I=-10mA/-0.5mA$				
Input Current	DTA113ZE	I_I	$V_I=-5V$	-	-	-7.2	mA
	DTA114WE					-0.88	
	DTA114YE					-0.88	
	DTA123JE					-3.6	
	DTA123YE					-3.8	
	DTA143XE					-1.8	
	DTA143ZE					-1.8	
Output Current		$I_{O(off)}$	$V_{CC}=-50V, V_I=0V$	-	-	-0.5	μA
DC Current Gain	DTA113ZE	G_I	$V_O=-5V, I_O=-5mA$	33	-	-	
	DTA114WE		$V_O=-5V, I_O=-10mA$	24			
	DTA114YE		$V_O=-5V, I_O=-5mA$	68			
	DTA123JE		$V_O=-5V, I_O=-10mA$	80			
	DTA123YE		$V_O=-5V, I_O=-10mA$	33			
	DTA143XE		$V_O=-5V, I_O=-10mA$	30			

	DTA143ZE		V_O=-5V,I_O=-10mA	80			
Input Resistor	DTA113ZE	$R_1(R_2)$		0.7	1	1.3	kΩ
	DTA114WE			7	10	13	
	DTA114YE			7	10	13	
	DTA123JE			1.54	2.2	2.86	
	DTA123YE			1.54	2.2	2.86	
	DTA143XE			3.29	4.7	6.11	
	DTA143ZE			3.29	4.7	6.11	
Resistance Ratio	DTA113ZE	R_2/R_1		8	10	12	-
	DTA114WE			0.37	0.47	0.57	
	DTA114YE			3.7	4.7	5.7	
	DTA123JE			17	21	26	
	DTA123YE			3.6	4.5	5.5	
	DTA143XE			1.7	2.1	2.6	
	DTA143ZE			8	10	12	
Gain-Bandwidth Product		f_T	V_{CE}=-10V,I_E=5mA, f=100MHz	-	250	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

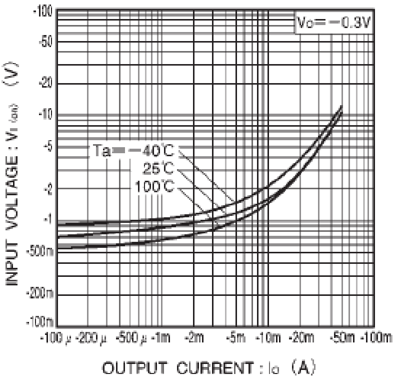


Fig.1 Input voltage vs. output current (ON characteristics)

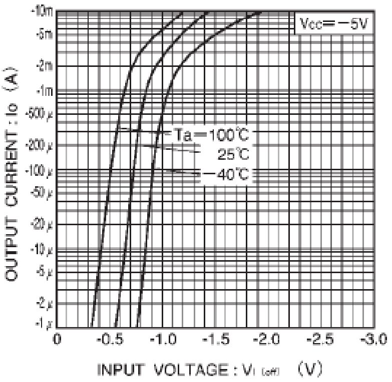


Fig.2 Output current vs. input voltage (OFF characteristics)

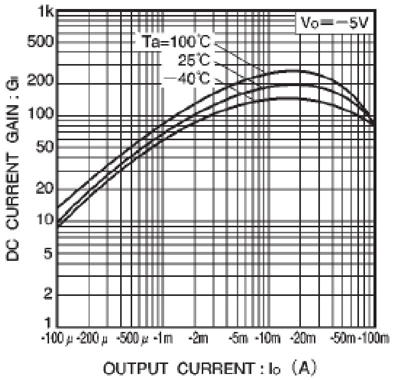


Fig.3 DC current gain vs. output current

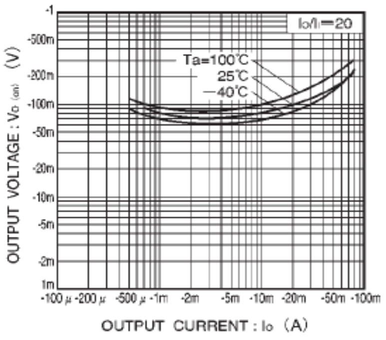
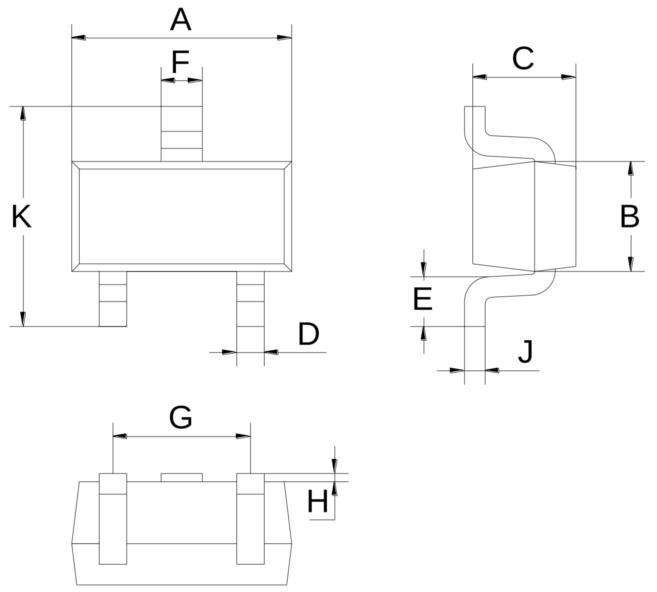


Fig.4 Output voltage vs. output current

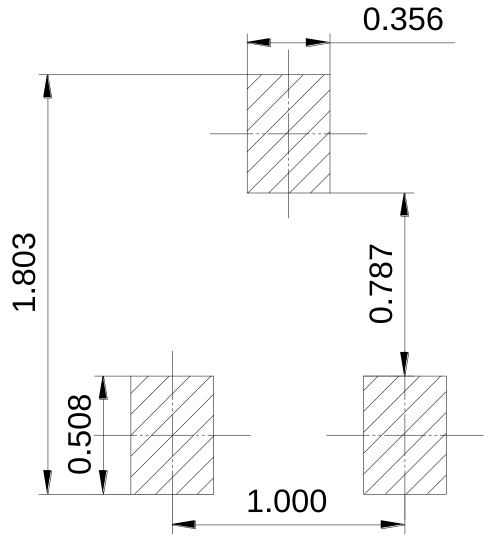
PACKAGE OUTLINE

Plastic surface mounted package SOT-523



SOT-523		
Dim	Min	Max
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

Device	Package	Shipping
DTAXXXXE	SOT-523	3000 pcs / Tape & Reel