DDTC (R1≠R2 SERIES) E

NPN PRE-BIASED SMALL SIGNAL SOT-523 SURFACE MOUNT TRANSISTOR

NEW PRODUCT

UNDER DEVELOPMENT

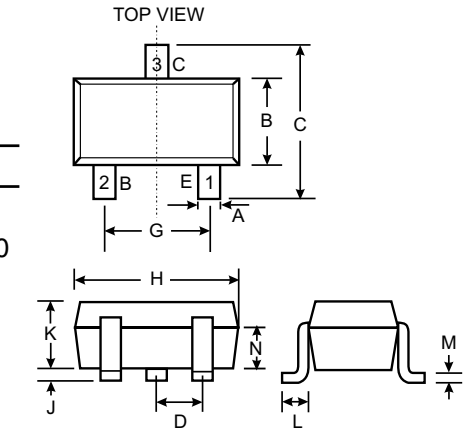
Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDTA)
- Built-In Biasing Resistors, R1≠R2

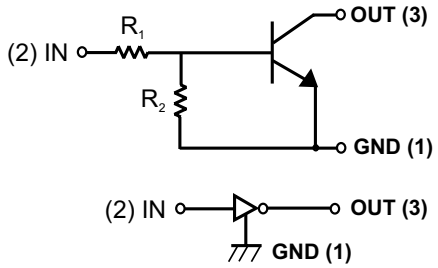
Mechanical Data

- Case: SOT-523, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.002 grams (approx.)

P/N	R1 (NOM)	R2 (NOM)	MARKING
DDTC113ZE	1K	10K	N02
DDTC123YE	2.2K	10K	N05
DDTC123JE	2.2K	47K	N06
DDTC143XE	4.7K	10K	N09
DDTC143FE	4.7K	22K	N10
DDTC143ZE	4.7K	47K	N11
DDTC114YE	10K	47K	N14
DDTC114WE	10K	4.7K	N15
DDTC124XE	22K	47K	N18
DDTC144VE	47K	10K	N21
DDTC144WE	47K	22K	N22



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
All Dimensions in mm			



SCHEMATIC DIAGRAM

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (1)		V_{CC}	50	V
Input Voltage, (2) to (1)	DDTC113ZE	V_{IN}	-5 to +10	V
	DDTC123YE		-5 to +12	
	DDTC123JE		-5 to +12	
	DDTC143XE		-7 to +20	
	DDTC143FE		-6 to +30	
	DDTC143ZE		-5 to +30	
	DDTC114YE		-6 to +40	
	DDTC114WE		-10 to +30	
	DDTC124XE		-10 to +40	
	DDTC144VE		-15 to +40	
	DDTC144WE		-10 to +40	
Output Current	DDTC113ZE	I_O	100	mA
	DDTC123YE		100	
	DDTC123JE		100	
	DDTC143XE		100	
	DDTC143FE		100	
	DDTC143ZE		100	
	DDTC114YE		70	
	DDTC114WE		100	
	DDTC124XE		50	
	DDTC144VE		30	
	DDTC144WE		30	
Output Current	All	I_C (Max)	100	mA
Power Dissipation		P_d	150	mW
Operating and Storage and Temperature Range		T_j, T_{STG}	-55 to +150	°C

NEW PRODUCT

Electrical Characteristics @ $T_A = 25°C$ unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	DDTC113ZE DDTC123YE DDTC123JE DDTC143XE DDTC143FE DDTC143ZE DDTC114YE DDTC114WE DDTC124XE DDTC144VE DDTC144WE	$V_{I(off)}$	0.3 0.3 0.5 0.3 0.3 0.5 0.3 0.8 0.4 1.0 0.8	—	—	V	V_{CC} = 5V, I_O = 100μA
	DDTC113ZE DDTC123YE DDTC123JE DDTC143XE DDTC143FE DDTC143ZE DDTC114YE DDTC114WE DDTC124XE DDTC144VE DDTC144WE	$V_{I(on)}$	—	—	3.0 3.0 1.1 2.5 1.3 1.3 1.4 3.0 2.5 5.0 4.0		V_O = 0.3V, I_O = 20mA V_O = 0.3V, I_O = 20mA V_O = 0.3V, I_O = 5mA V_O = 0.3V, I_O = 20mA V_O = 0.3V, I_O = 3mA V_O = 0.3V, I_O = 5mA V_O = 0.3V, I_O = 1mA V_O = 0.3V, I_O = 2mA V_O = 0.3V, I_O = 2mA V_O = 0.3V, I_O = 2mA V_O = 0.3V, I_O = 2mA
Output Voltage		$V_{O(on)}$	—	0.1	0.3	V	I_O/I_I = 5mA/0.25mA DDCT123JE I_O/I_I = 5mA/0.25mA DDCT143ZE I_O/I_I = 5mA/0.25mA DDCT114YE I_O/I_I = 10mA/0.5mA All Others
Input Current	DDTC113ZE DDTC123YE DDTC123JE DDTC143XE DDTC143FE DDTC143ZE DDTC114YE DDTC114WE DDTC124XE DDTC144VE DDTC144WE	I_I	—	—	7.2 3.8 3.6 1.8 1.8 1.8 0.88 0.88 0.36 0.16 0.16	mA	V_I = 5V
Output Current		$I_{O(off)}$	—	—	0.5	μA	V_{CC} = 50V, V_I = 0V
DC Current Gain	DDTC113ZE DDTC123YE DDTC123JE DDTC143XE DDTC143FE DDTC143ZE DDTC114YE DDTC114WE DDTC124XE DDTC144VE DDTC144WE	G_I	33 33 80 30 68 80 68 24 68 33 56	—	—	—	V_O = 5V, I_O = 10mA
Gain-Bandwidth Product*		f_T	—	250	—	MHz	V_{CE} = 10V, I_E = 5mA, f = 100MHz

* Transistor - For Reference Only