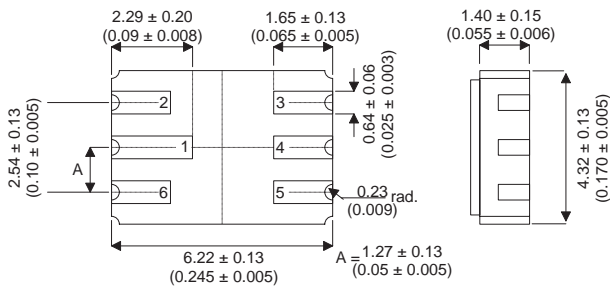


**NPN/PNP DUAL TRANSISTOR IN A
HERMETICALLY SEALED CERAMIC
SURFACE MOUNT PACKAGE
FOR HIGH RELIABILITY APPLICATIONS**

MECHANICAL DATA

Dimensions in mm (inches)



**LCC2 PACKAGE
Underside View**

ZTX653

ZXT753

PAD 1 – Collector 1

PAD 3 – Base 2

PAD 2 – Base 1

PAD 4 – Collector 2

PAD 6 – Emitter 1

PAD 5 – Emitter 2

FEATURES

- DUAL SILICON PLANAR NPN/PNP TRANSISTORS
- HERMETIC SURFACE MOUNT PACKAGE
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVEL OPTIONS

ABSOLUTE MAXIMUM RATINGS PER SIDE ($T_C = 25^\circ\text{C}$ unless otherwise stated)

		ZTX653	ZTX753
V_{CBO}	Collector – Base Voltage	120V	-120V
V_{CEO}	Collector – Emitter Voltage	100V	-100V
V_{EBO}	Emitter – Base Voltage	5V	-5V
I_{CM}	Peak Pulse Current * Limited package	2A	-2A
I_C	Continuous Collector Current	2A	-2A
P_{TOT}	Power Dissipation @ $T_{amb} = 25^\circ\text{C}$	1W	
	Derate above 25°C	8mW/°C	
$T_j T_{STG}$	Operating And Storage Temperature Range	-55 to 150°C	
$R_{\theta J-A}$	Junction - Ambient Thermal Resistance	125°C/W	

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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Issue 1

ZTX653 ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CBO}$ Collector – Base Breakdown Voltage	$I_C = 100\mu\text{A}$	120			V
$V_{(BR)CEO}$ Collector – Emitter Breakdown Voltage	$I_C = 10\text{mA}$	100			
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_E = 100\mu\text{A}$	5			
I_{CBO} Collector – Cut-off Current	$V_{CB} = 100\text{V}$ $T_C = 100^\circ\text{C}$			0.1	μA
				10	
I_{EBO} Emitter Cut-off Current	$V_{EB} = 4\text{V}$			0.1	
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = 500\text{mA}$ $I_B = 50\text{mA}^*$		0.2	0.3	V
	$I_C = 1\text{A}$ $I_B = 100\text{mA}^*$		0.35	0.5	
	$I_C = 2\text{A}$ $I_B = 200\text{mA}^*$		0.8	1.0	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = 1\text{A}$ $I_B = 100\text{mA}^*$		1.0	1.3	
$V_{BE(on)}$ Base – Emitter Turn-On Voltage	$I_C = 1\text{A}$ $V_{CE} = 2\text{V}^*$		0.95	1.2	
H_{FE} DC Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 2\text{V}^*$	70	200		—
	$I_C = 500\text{mA}$ $V_{CE} = 2\text{V}^*$	100	200	300	
	$I_C = 1\text{A}$ $V_{CE} = 2\text{V}^*$	55	110		
	$I_C = 2\text{A}$ $V_{CE} = 2\text{V}^*$	25	55		

* Pulse test $t_p = 300\text{ms}$, $\delta \leq 2\%$

DYNAMIC CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_T Transition Frequency	$I_C = 100\text{mA}$ $V_{CE} = 5\text{V}$ $f = 100\text{MHz}$	140	175		MHz
C_{obo} Output Capacitance	$V_{CB} = 10\text{V}$ $f = 1.0\text{MHz}$			30	pF
T_{on} Switching Times	$I_C = 500\text{mA}$ $V_{CC} = 10\text{V}$		80		ns
T_{off} Switching Times	$I_{B1} = I_{B2} = 50\text{mA}$		1200		

ZTX753 ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CBO}$ Collector – Base Breakdown Voltage	$I_C = -100\mu\text{A}$	-120			V
$V_{(BR)CEO}$ Collector – Emitter Breakdown Voltage	$I_C = -10\text{mA}$	-100			
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_E = -100\mu\text{A}$	-5			
I_{CBO} Collector – Cut-off Current	$V_{CB} = -100\text{V}$ $T_C = 100^\circ\text{C}$			-0.1	μA
I_{EBO} Emitter Cut-off Current	$V_{EB} = -4\text{V}$			-0.1	
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = -500\text{mA}$ $I_B = -50\text{mA}^*$		-0.2	-0.3	V
	$I_C = -1\text{A}$ $I_B = -100\text{mA}^*$		-0.35	-0.5	
	$I_C = -2\text{A}$ $I_B = -200\text{mA}^*$		-0.8	-1.0	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = -1\text{A}$ $I_B = -100\text{mA}^*$		-1.0	-1.3	
$V_{BE(on)}$ Base – Emitter Turn-On Voltage	$I_C = -1\text{A}$ $V_{CE} = -2\text{V}^*$		-0.95	-1.2	
H_{FE} DC Current Gain	$I_C = -50\text{mA}$ $V_{CE} = -2\text{V}^*$	70	200		—
	$I_C = -500\text{mA}$ $V_{CE} = -2\text{V}^*$	100	200	300	
	$I_C = -1\text{A}$ $V_{CE} = -2\text{V}^*$	55	110		
	$I_C = -2\text{A}$ $V_{CE} = -2\text{V}^*$	25	55		

* Pulse test $t_p = 300\text{ms}$, $\delta \leq 2\%$

DYNAMIC CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_T Transition Frequency	$I_C = -100\text{mA}$ $V_{CE} = -5\text{V}$ $f = 100\text{MHz}$	100	140		MHz
C_{obo} Output Capacitance	$V_{CB} = -10\text{V}$ $f = 1.0\text{MHz}$			30	pF
T_{on} Switching Times	$I_C = -500\text{mA}$ $V_{CC} = -10\text{V}$		40		ns
T_{off} Switching Times	$I_{B1} = I_{B2} = -50\text{mA}$		600		