

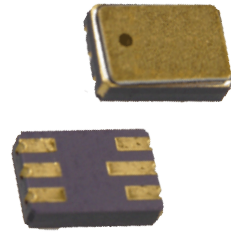
Surface Mount NPN/PNP Complementary Transistor

2N4854U (TX, TXV)



Features:

- Ceramic 6 pin surface mount package
- Small package to minimize circuit board area
- Hermetically sealed
- Processed per MIL-PRF-19500/421



Description:

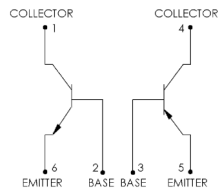
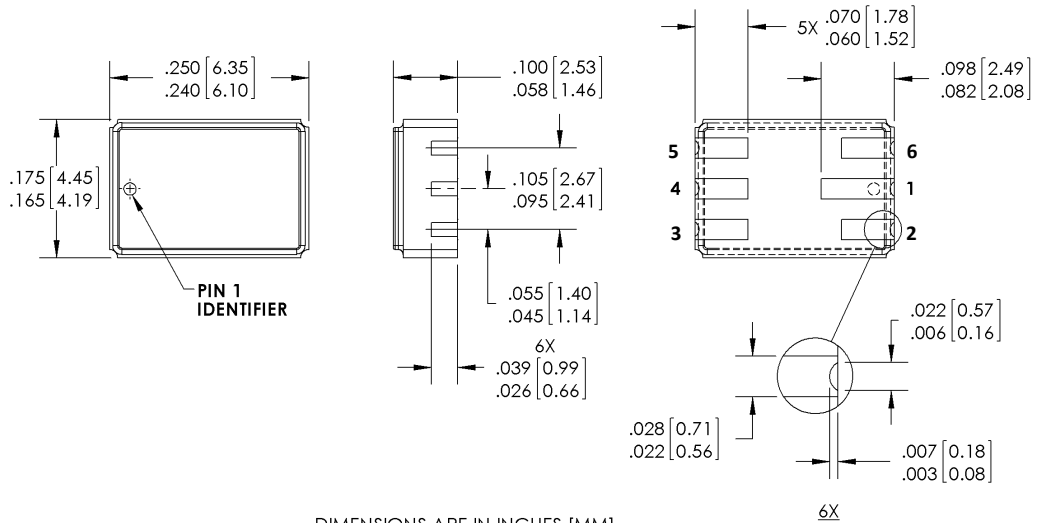
The 2N4854U (TX, TXV) are hermetically sealed, ceramic surface mount complementary NPN/PNP transistor pair. The “U” suffix denotes the six terminal (C-6) leadless chip carrier package option. The miniature six pin ceramic package is ideal for designs where board space and device weight are important design considerations.

Typical screening and lot acceptance tests are per MIL-PRF-19500/421. The burn-in condition is $V_{CB} = 30\text{ V}$, $P_D = 300\text{ mW}$ each transistor, $T_A = 25^\circ\text{C}$. Refer to MIL-PRF-19500/421 for complete requirements.

When ordering parts without processing, do not use the TX or TXV suffix.

Applications:

- General switching
- Amplification
- Signal processing
- Radio transmission
- Logic gates



Pin #	PNP Transistor	Pin #	NPN
3	Base	2	Base
4	Collector	1	Collector
5	Emitter	6	Emitter

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

NPN to PNP Isolation Voltage	500 VDC
Collector-Base Voltage	60 V
Collector-Emitter Voltage	40 V
Emitter-Base Voltage	5.0 V
Collector Current-Continuous	600 mA
Operating Junction Temperature (T_J)	-65° C to +200° C
Storage Junction Temperature (T_{stg})	-65° C to +200° C
Power Dissipation @ $T_A = 25^\circ\text{C}$ (both transistors driven equally)	0.6 W
Power Dissipation @ $T_c = 25^\circ\text{C}$ (both transistors driven equally)	2.0 W ⁽¹⁾
Soldering Temperature (vapor phase reflow for 30 seconds)	215° C
Soldering Temperature (heated collet for 5 seconds)	260° C

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
OFF CHARACTERISTICS					
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	60		V	$I_C = 10\ \mu\text{A}, I_E = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	40		V	$I_C = 10\ \text{mA}, I_B = 0^{(2)}$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5		V	$I_E = 10\ \mu\text{A}, I_C = 0$
I_{CBO}	Collector-Base Cutoff Current		10	nA	$V_{CB} = 50\ \text{V}, I_E = 0$
			10	μA	$V_{CB} = 50\ \text{V}, I_E = 0, T_A = 150^\circ\text{C}$
I_{EBO}	Emitter-Base Cutoff Current		10	nA	$V_{EB} = 3\ \text{V}, I_C = 0$
ON CHARACTERISTICS					
h_{FE}	Forward-Current Transfer Ratio	50		-	$V_{CE} = 10\ \text{V}, I_C = 150\ \text{mA}^{(2)}$
		35		-	$V_{CE} = 10\ \text{V}, I_C = 0.1\ \text{mA}$
		50		-	$V_{CE} = 10\ \text{V}, I_C = 1.0\ \text{mA}$
		75		-	$V_{CE} = 10\ \text{V}, I_C = 10\ \text{mA}^{(2)}$
		100	300	-	$V_{CE} = 10\ \text{V}, I_C = 150\ \text{mA}^{(2)}$
		35		-	$V_{CE} = 10\ \text{V}, I_C = 300\ \text{mA}^{(2)}$
		12		-	$V_{CE} = 10\ \text{V}, I_C = 10\ \text{mA}, T_A = -55^\circ\text{C}$

Note: 1. Derate linearly 6.6 mW/°C above 25° C
2. Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$

3. Polarities given are for the NPN device. Reverse polarity on limits & conditions as applicable for the PNP side.

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Electrical Specifications

Electrical Characteristics ($T_A = 25^\circ \text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
ON CHARACTERISTICS					
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage		0.40	V	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}^{(2)}$
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	0.8		V	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}^{(2)}$
SMALL-SIGNAL CHARACTERISTICS					
$ h_{ie} $	Small Signal Common Emitter Input Impedance	1.5	9	k Ω	$V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ mA}, f = 1.0 \text{ kHz}$
$ h_{oe} $	Small Signal Common Emitter Output Admittance		50	μmho	
h_{fe}	Small Signal Current Transfer Ratio	60	300	-	
NF	Noise Figure		8	db	$f = 1.0 \text{ kHz}, R_G = 1.0 \text{ k}\Omega, I_C = 0.1 \text{ mA}, V_{CE} = 10 \text{ V}$
$ h_{fe} $	Small Signal Forward Current Transfer Ratio	2	8	-	$V_{CE} = 20 \text{ V}, I_C = 20 \text{ mA}, f = 100 \text{ MHz}$
C_{obo}	Open Circuit Output Capacitance		8	pF	$V_{CB} = 10 \text{ V}, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$
SWITCHING CHARACTERISTICS					
t_{on}	Turn-On Time		45	ns	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = 15 \text{ mA}$
t_{off}	Turn-Off Time		300	ns	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = I_{B2} = 15 \text{ mA}$

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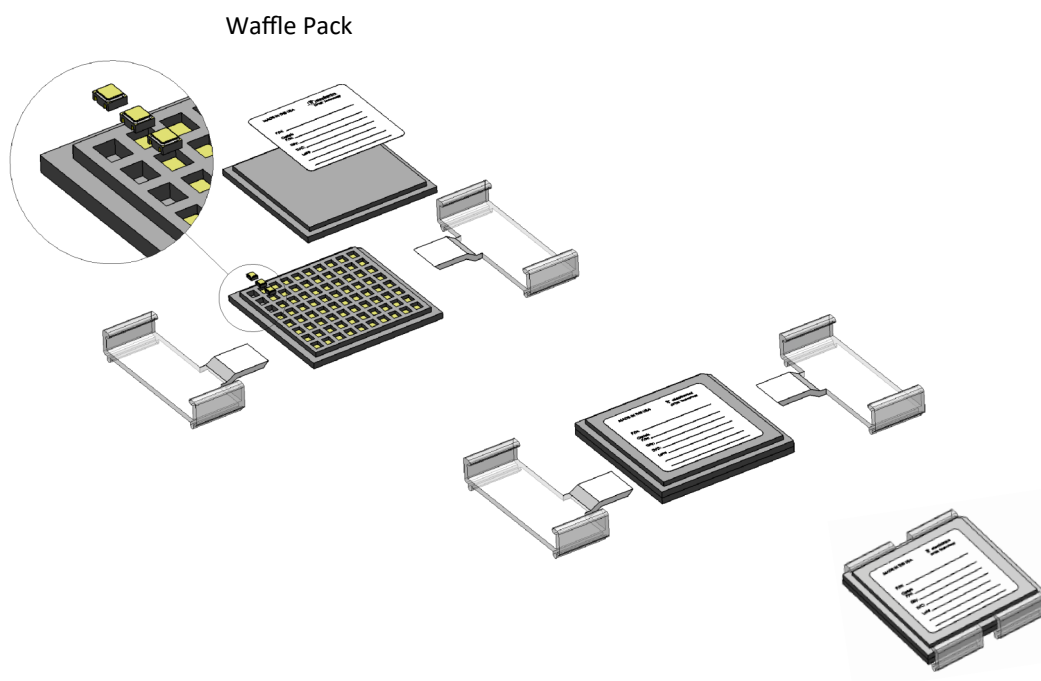
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Packaging

Standard Packaging:



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