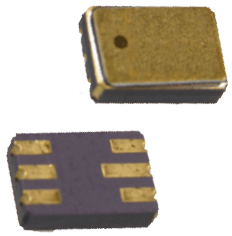
Surface Mount NPN/PNP Complementary Transistor

2N4854U

Obsolete (2N4854UTX, 2N4854UTXV)



Features:

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

Description:

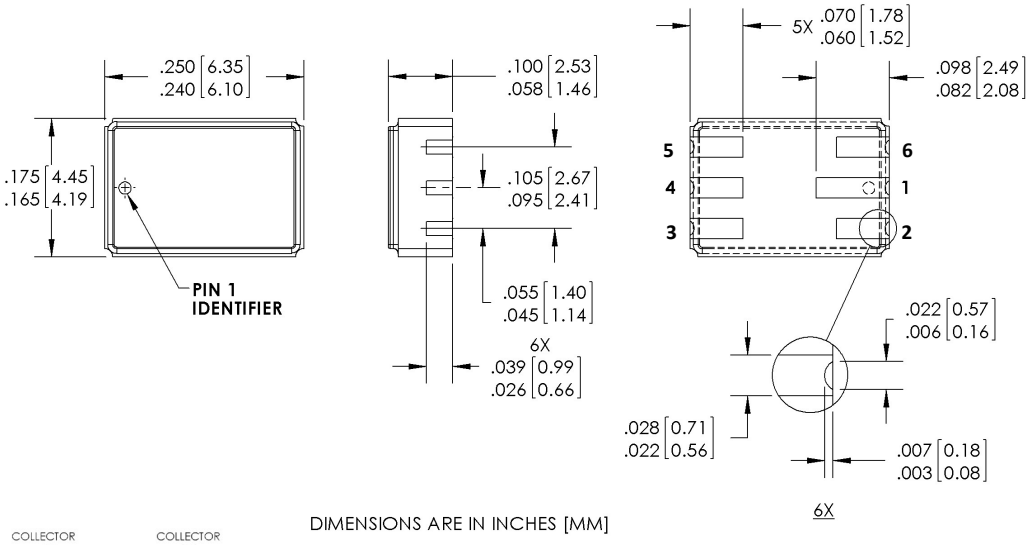
The 2N4854U (TX, TXV - Obsolete) are hermetically sealed, ceramic surface mount complementary NPN/PNP transistor pair. The “U” suffix denotes the six terminal (C-6) leadless chip carrier package option. The miniature six pin ceramic package is ideal for designs where board space and device weight are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

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

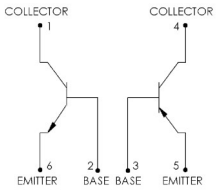
When ordering parts without processing, do not us the TX or TXV suffix.

Applications:

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



DIMENSIONS ARE IN INCHES [MM]



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

TT Electronics | OPTEK Technology
2900 E. Plano Pkwy, Plano, TX 75074 | Ph: +1 972 323 2200
www.ttelectronics.com | sensors@ttelectronics.com

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2N4854U

Obsolete (2N4854UTX, 2N4854UTXV)

Electrical Specifications

Absolute Maximum Ratings (T_A = 25° 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° C (both transistors driven equally)	0.6 W
Power Dissipation @ Tc = 25° 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° 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 µA, I_E = 0
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	40	-	V	I_C = 10 mA, I_B = 0(2)
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5	-	V	I_E = 10 µA, I_C = 0
I_{CBO}	Collector-Base Cutoff Current	-	10	nA	V_{CB} = 50 V, I_E = 0
		-	10	µA	V_{CB} = 50 V, I_E = 0, T_A = 150° C
I_{EBO}	Emitter-Base Cutoff Current	-	10	nA	V_{EB} = 3 V, I_C = 0
ON CHARACTERISTICS					
h_{FE}	Forward-Current Transfer Ratio	50	-	-	V_{CE} = 10 V, I_C = 150 mA(2)
		35	-	-	V_{CE} = 10 V, I_C = 0.1 mA
		50	-	-	V_{CE} = 10 V, I_C = 1.0 mA
		75	-	-	V_{CE} = 10 V, I_C = 10 mA(2)
		100	300	-	V_{CE} = 10 V, I_C = 150 mA(2)
		35	-	-	V_{CE} = 10 V, I_C = 300 mA(2)
		12	-	-	V_{CE} = 10 V, I_C = 10 mA, T_A = -55° C

Note: 1. Derate linearly 6.6 mW/° C above 25° C
2. Pulse Width ≤300 µs, Duty Cycle ≤ 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° 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 mA, I_B = 15 mA[(2)]
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	0.8	-	V	I_C = 150 mA, I_B = 15 mA[(2)]
SMALL-SIGNAL CHARACTERISTICS					
$\lvert h_{ie} \rvert$	Small Signal Common Emitter Input Impedance	1.5	9	kΩ	V_{CE} = 10 V, I_C = 1.0 mA, f = 1.0 kHZ
$\lvert h_{oe} \rvert$	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 kHZ, R_G = 1.0 kΩ, I_C = 0.1 mA, V_{CE} = 10 V
$\lvert h_{fe} \rvert$	Small Signal Forward Current Transfer Ratio	2	8	-	V_{CE} = 20 V, I_C = 20 mA, f = 100 MHz
C_{obo}	Open Circuit Output Capacitance	-	8	pF	V_{CB} = 10 V, 100 kHz ≤ f ≤ 1.0 MHz
SWITCHING CHARACTERISTICS					
t_{on}	Turn-On Time	-	45	ns	V_{CC} = 30 V, I_C = 150 mA, I_{B1} = 15 mA
t_{off}	Turn-Off Time	-	300	ns	V_{CC} = 30 V, I_C = 150 mA, I_{B1} = I_{B2} = 15 mA

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Packaging

Standard Packaging:

Waffle Pack