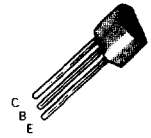
NPN Silicon Planar Medium Power Darlington Transistor

ZTX614

FEATURES

- 1.5W power dissipation*
- 0.8A continuous collector current
- h_{FE} up to 10,000 at $I_C = 500mA$
- Fast switching



Plastic E-Line
(TO-92 Compatible)

DESCRIPTION

The ZTX614 is a high voltage Darlington transistor designed for medium power applications requiring very high current gain and high input impedance. The monolithic construction has the inherent advantages of fast switching times, low saturation voltages and low leakage currents. Application areas include: driver and output stages of audio amplifiers; direct interfacing with integrated circuits; lamp, relay and hammer driving.

The E-line package is formed by transfer moulding a silicone plastic specially selected to provide a rugged one-piece encapsulation resistant to severe environments and allow the high junction temperature operation normally associated with metal can devices.

E-line encapsulated devices are approved for use in military, industrial and professional equipments.

Alternative lead configurations are available as plug-in replacements to TO-5/39 and TO-18 metal can types, and for surface mounting.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	10	V
Continuous Collector Current	I_C	800	mA
Practical Power Dissipation*	P_{totp}	1.5	W
Power Dissipation at $T_{amb} = 25°C$ derate above 25°C	tot	1.0 5.7	W mW/°C
Operating and Storage Temperature Range		−55 to +200	°C

*The power which can be dissipated assuming the device mounted in typical manner on PCB with copper equal to 1 sq. inch minimum.

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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25°C$ unless otherwise stated).

Parameter	Symbol	Min.	Max.	Unit	Test Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	120	—	V	$I_C = 10\mu A$, $I_E = 0$
Collector-emitter sustaining voltage	$V_{CEO(sus)}$	100	—	V	$I_C = 10mA$, $I_B = 0$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	10	—	V	$I_E = 10\mu A$, $I_C = 0$
Collector-base cut-off current	I_{CBO}	—	100	nA	$V_{CB} = 60V$, $I_E = 0$
Emitter-base cut-off current	I_{EBO}	—	100	nA	$V_{EB} = 8V$, $I_C = 0$
Static forward current transfer ratio	h_{FE}	5,000 10,000	— —		$I_C = 100mA$, $I_C = 500mA$ } $V_{CE} = 5V$*
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	1.25	V	$I_C = 800mA$, $I_B = 8mA$*
Base-emitter on voltage	$V_{BE(on)}$	—	1.8	V	$I_C = 800mA$, $V_{CE} = 5V$*

*Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.

Refer to BCX38 for graphs.