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NTE3223-1, NTE3223-2, NTE3223-4 Optoisolator NPN Transistor Output

Description:

The NTE3223-1, NTE3223-2 and NTE3223-3 are a series of optically coupled isolators which consist of GaAs light emitting diodes and NPN silicon photo transmitters in space efficient dual-in-line plastic packages.

The NTE3223-1 comes in a 4-Lead DIP type package with an NPN transistor output. The NTE3223-2 contains a dual NPN transistor output and is supplied in a 8-Lead DIP type package. The NTE3223-4 contains a quad NPN transistor output and is supplied in a 16-Lead DIP type package.

Features:

- High Current Transfer Ratio (80% min)
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- High BV_{CEO} (80Vmin)

Applications:

- Computer Terminals
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Input Diode

Reverse Voltage, V _R	6V
Forward Current, I _F	50mA
Power Dissipation, P _D	70mW

Output Transistor

Collector-Emitter Voltage, BV _{CEO}	80V
Emitter-Collector Voltage, BV _{ECO}	6V
Power Dissipation (Per Channel) P _C	150mW

Total Device

Total Power Dissipation, P _D	200mW
Derate linearly above 25°C	2.67mW/°C
Operating Ambient Temperature Range, T _A	-30° to +100°C
Storage Temperature Range, T _{stg}	-55° to +125°C
Lead Soldering Temperature (1/16 inch (1.6mm) from case for 10 secs), T _L	+260°C

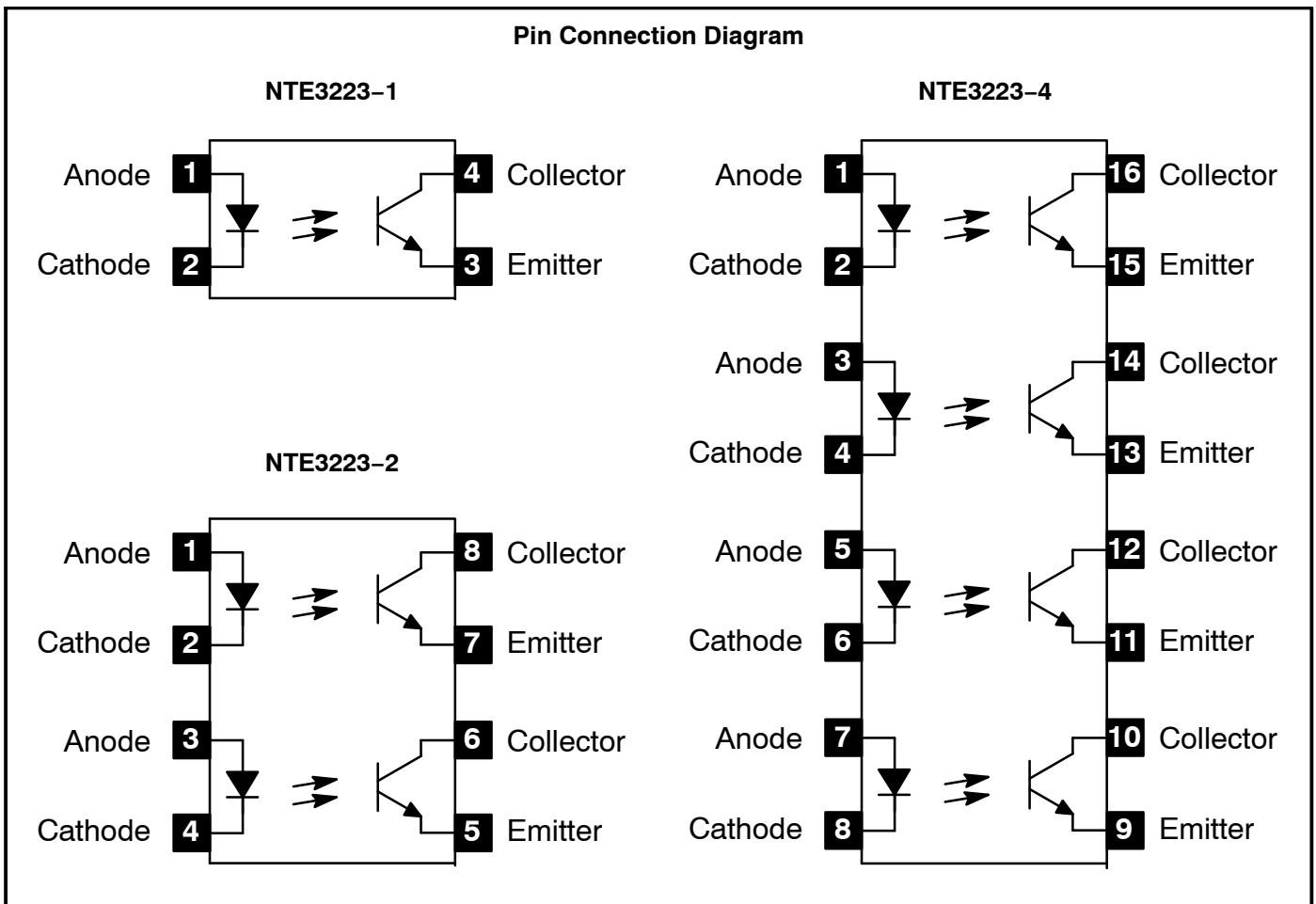
Rev. 5-17



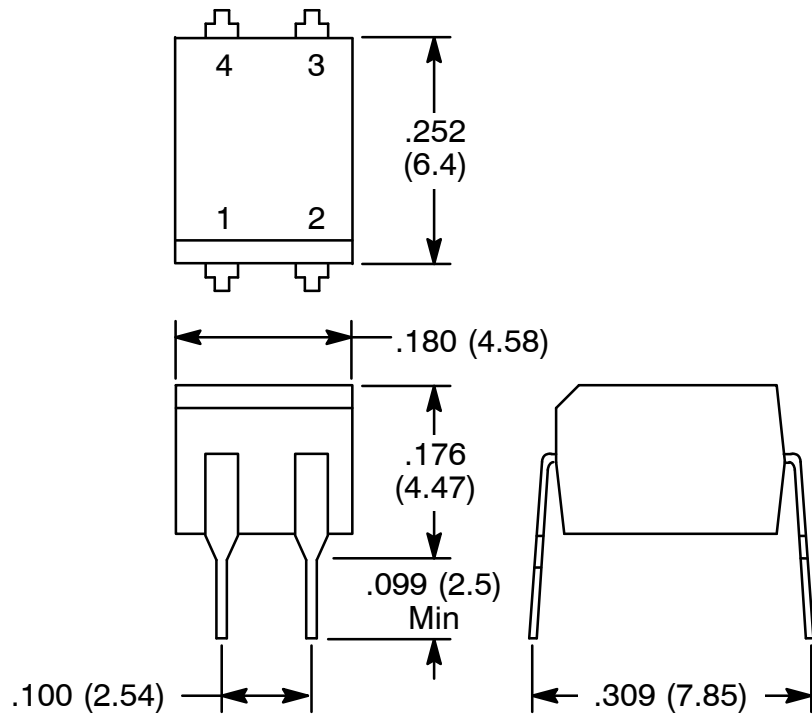
Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input						
Forward Voltage	V_F	$I_F = 20\text{mA}$	-	1.2	1.4	V
Reverse Current	I_R	$V_R = 4\text{V}$	-	-	10	μA
Output						
Collector-Emitter Dark Current	I_{CEO}	$V_{CE} = 20\text{V}$	-	-	100	nA
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1\text{mA}$	80	-	-	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E = 100\mu\text{A}$	6	-	-	V
Coupled						
Current Transfer Ratio	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$	80	-	600	%
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 10\text{mA}, I_C = 2\text{mA}$	-	-	0.3	V
Input to Output Isolation Voltage	V_{ISO}	Note 1	5300	-	-	V_{RMS}
		Note 1	7500	-	-	V_{PK}
Input-output Isolation Resistance	R_{ISO}	$V_{10} = 500\text{V}$ (Note 1)	5×10^{10}	-	-	Ω
Output Rise Time	t_r	$V_{CE} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	-	4	-	μs
Output Fall Time	t_f		-	3	-	μs

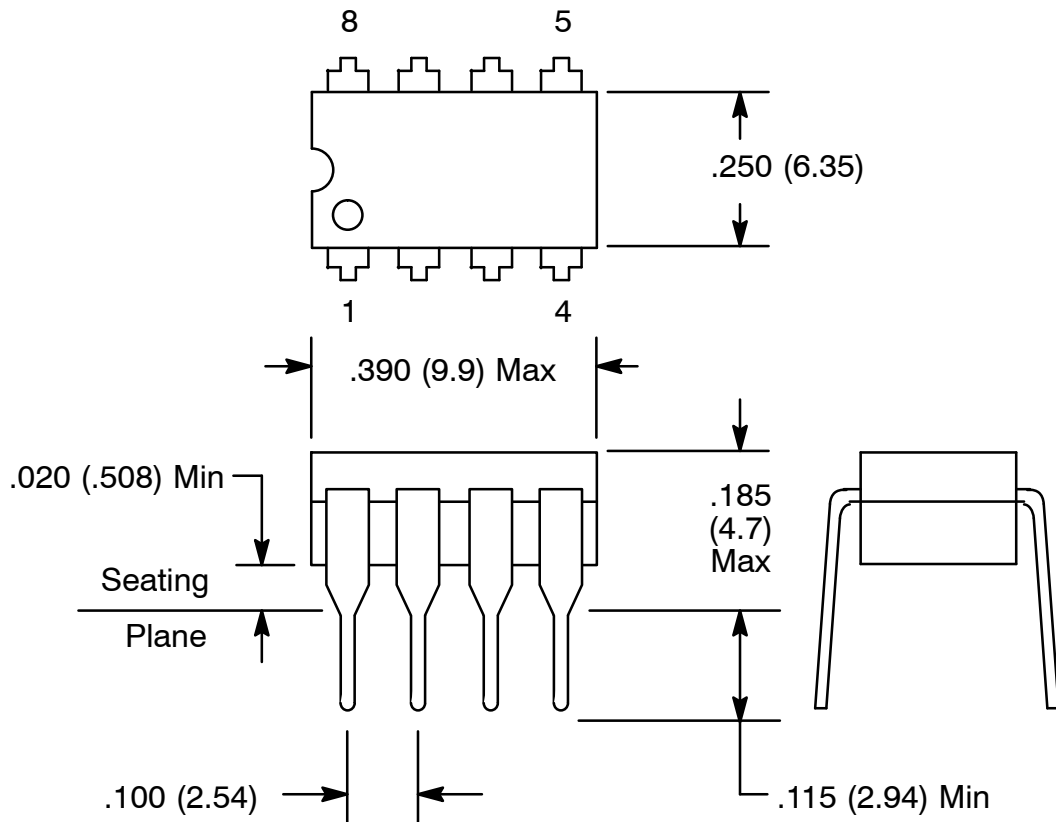
Note 1. Measured with input leads shorted together and output leads shorted together.



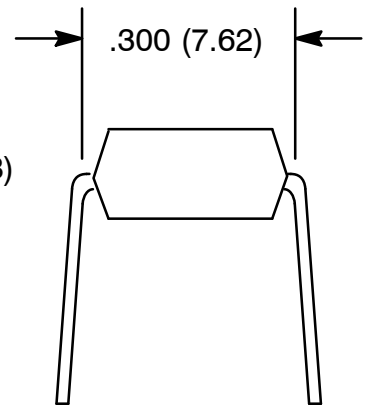
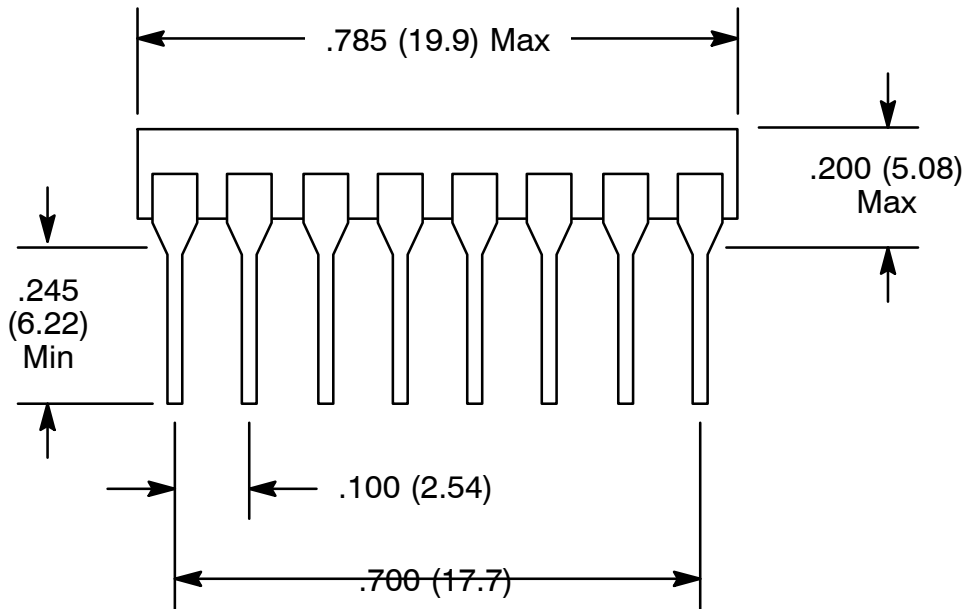
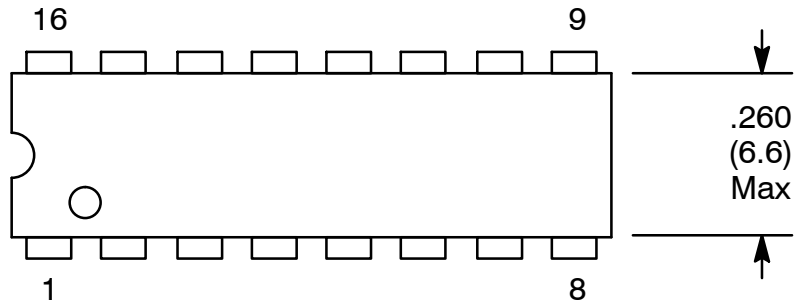
NTE3223-1



NTE3223-2



NTE3223-4



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