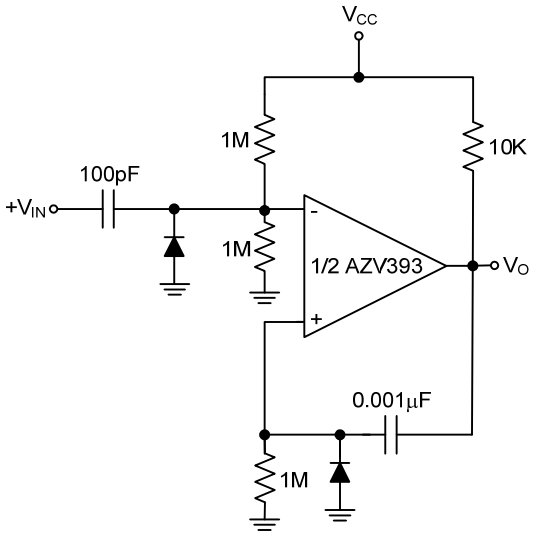
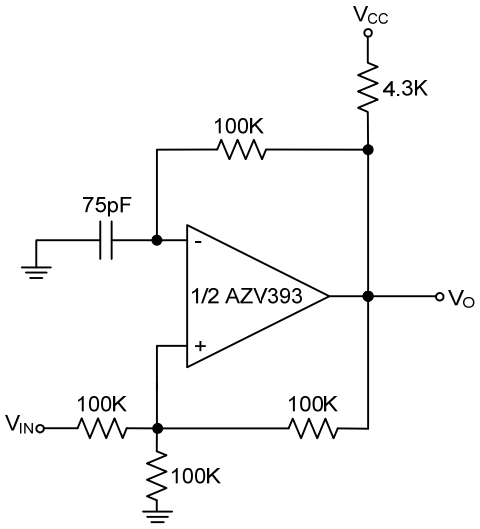
Typical Applications Circuit (Cont.)

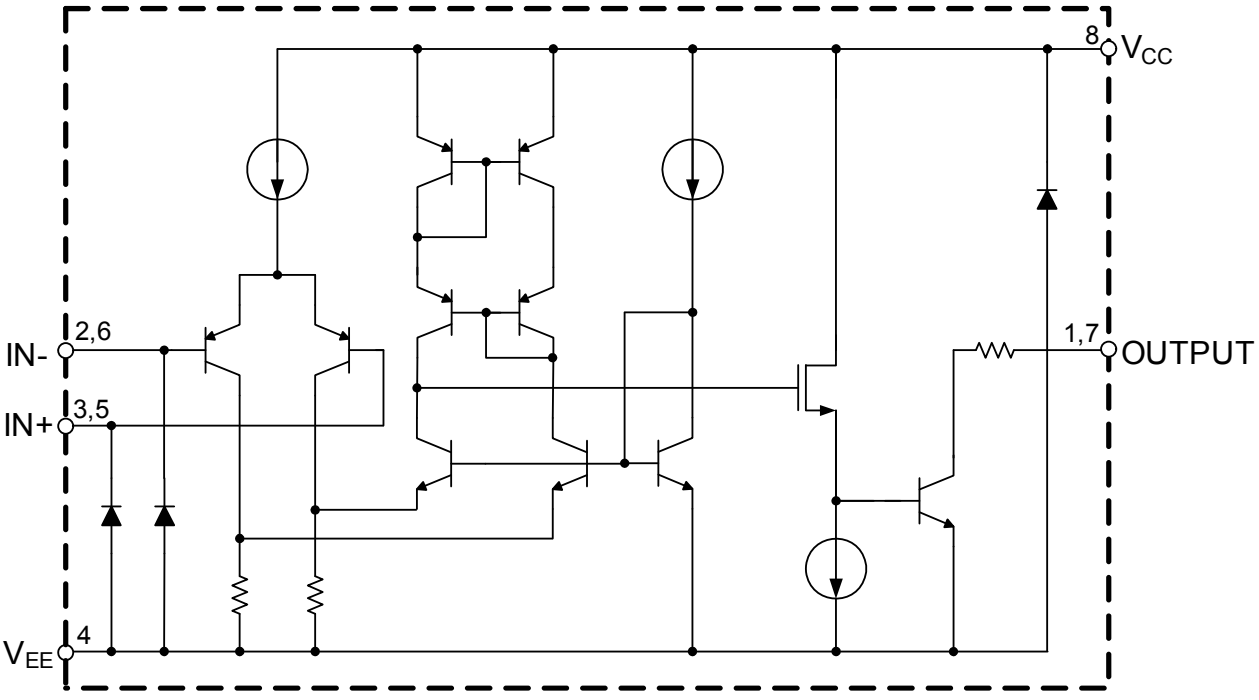


One Shot Multivibrator



Squarewave Oscillator

Functional Block Diagram



Absolute Maximum Ratings (Note 1)

Symbol	Parameter	Rating	Unit
V_{CC}	Power Supply Voltage	6	V
T_J	Operation Junction Temperature	+150	°C
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_{LEAD}	Lead Temperature (Soldering, 10 seconds)	+260	°C
–	ESD (Machine Model)	300	V
–	ESD (Human Body Model)	4000	V

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{CC}	Supply Voltage	2.5	5.5	V
T_A	Ambient Operating Temperature Range	-40	+85	°C

2.7V DC Electrical Characteristics (@T_A = +25°C, V_{CC} = 2.7V, V_{EE} = 0V, R_L = 5.1kΩ connected to V_{CC} and V_{CM} = 0, **bold** typeface applies over full temperature ranges, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OS}	Input Offset Voltage	–	–	1.7	7	mV
		–	–	–	**9**	
TCV_{OS}	Input Offset Voltage Average Drift	–	–	5	–	µV/°C
I_B	Input Bias Current	I_{IN}+ or I_{IN}- with output in linear range, V_{CM} = 0V	–	10	250	nA
			–	–	**400**	
I_{IO}	Input Offset Current	I_{IN}+ - I_{IN}-, V_{CM} = 0V	–	5	50	nA
			–	–	**150**	
V_{SAT}	Saturation Voltage	I_{SINK} ≤ 1mA	–	200	–	mV
			–	–	**500**	
I_{SINK}	Output Sink Current	V_O ≤ 1.5V	5	23	–	mA
V_{CM}	Input Common Mode Voltage Range	–	-0.1	–	2	V
I_{CC}	Supply Current	–	–	70	150	µA
			–	–	**200**	
$I_{LEAKAGE}$	Output Leakage Current	–	–	0.003	–	µA

2.7V AC Electrical Characteristics (@T_A = +25°C, V_{CC} = 2.7V, V_{EE} = 0V, R_L = 5.1kΩ connected to V_{CC} and V_{CM} = 0, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
T_{PHL}	Propagation Delay (High to Low)	Input Overdrive = 10mV	–	1000	–	ns
		Input Overdrive = 100mV	–	350	–	
T_{PLH}	Propagation Delay (Low to High)	Input Overdrive = 10mV	–	500	–	ns
		Input Overdrive = 100mV	–	400	–	

5V DC Electrical Characteristics (@T_A = +25°C, V_{CC} = 5V, V_{EE} = 0V, R_L = 5.1kΩ connected to V_{CC} and V_{CM} = 0, **bold** typeface applies over full temperature ranges, unless otherwise specified.)

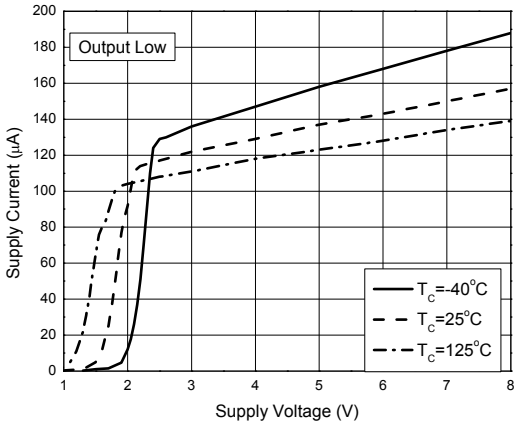
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OS}	Input Offset Voltage	–	–	1.7	7	mV
		–	–	–	**9**	
TCV_{OS}	Input Offset Voltage Average Drift	–	–	5	–	µV/°C
I_B	Input Bias Current	I_{IN}+ or I_{IN}- with output in linear range, V_{CM}=0V	–	25	250	nA
			–	–	**400**	
I_{IO}	Input Offset Current	I_{IN}+ - I_{IN}-, V_{CM}=0V	–	2	50	nA
			–	–	**150**	
V_{SAT}	Saturation Voltage	I_{SINK}≤4mA	–	200	400	mV
			–	–	**500**	
I_{SINK}	Output Sink Current	V_O≤1.5V	10	84	–	mA
V_{CM}	Input Common Mode Voltage Range	–	-0.1	–	4.2	V
A_V	Voltage Gain	–	20	50	–	V/mV
I_{CC}	Supply Current	–	–	100	200	µA
			–	–	**250**	
$I_{LEAKAGE}$	Output Leakage Current	–	–	0.003	–	µA

5V AC Electrical Characteristics (@T_A = +25°C, V_{CC} = 5V, V_{EE} = 0V, R_L = 5.1kΩ connected to V_{CC} and V_{CM} = 0, unless otherwise specified.)

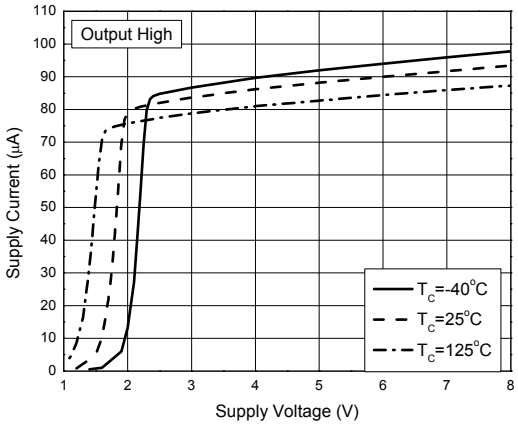
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
T_{PHL}	Propagation Delay (High to Low)	Input Overdrive=10mV	–	600	–	ns
		Input Overdrive=100mV	–	200	–	
T_{PLH}	Propagation Delay (Low to High)	Input Overdrive=10mV	–	450	–	ns
		Input Overdrive=100mV	–	300	–	

Performance Characteristics (@T_A = +25°C, unless otherwise specified.)

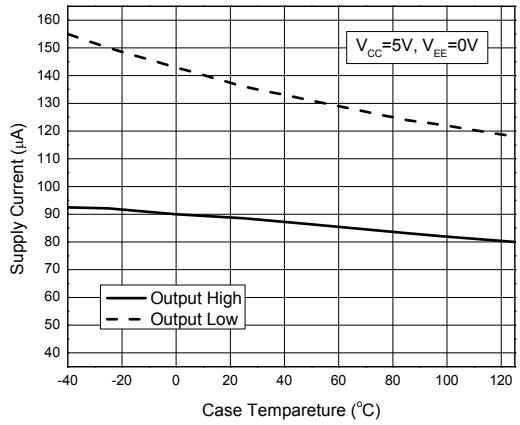
Supply Current vs. Supply Voltage



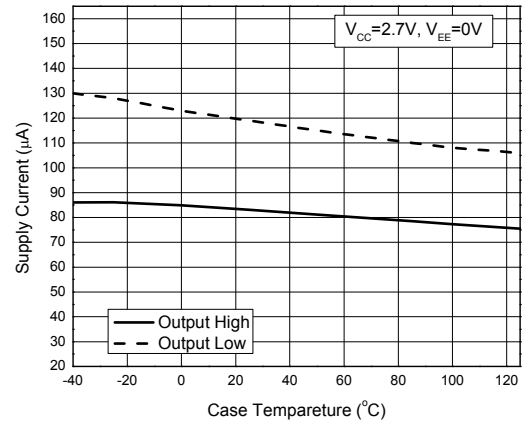
Supply Current vs. Supply Voltage



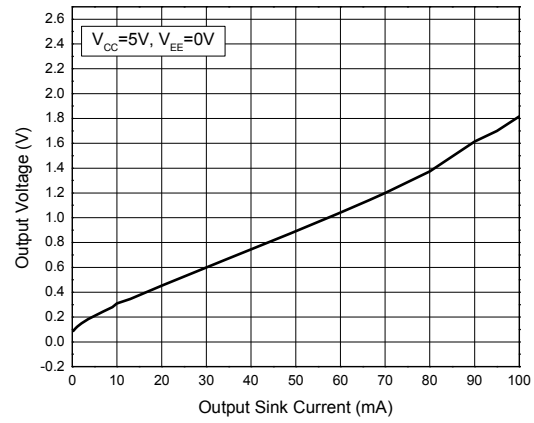
Supply Current vs. Case Temperature



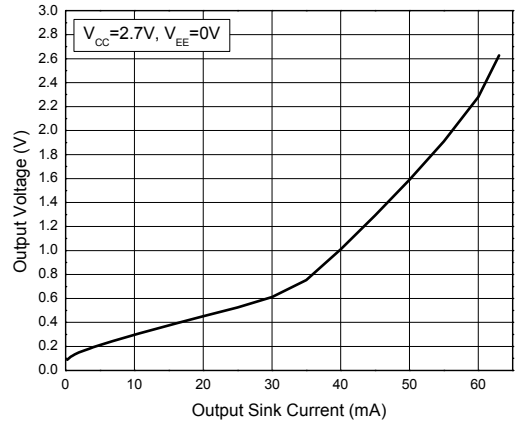
Supply Current vs. Case Temperature



Output Voltage vs. Output Sink Current

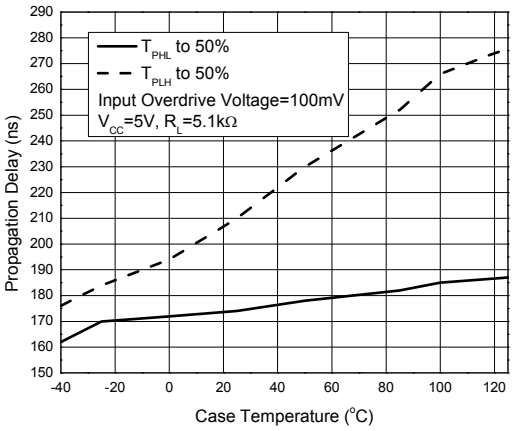


Output Voltage vs. Output Sink Current

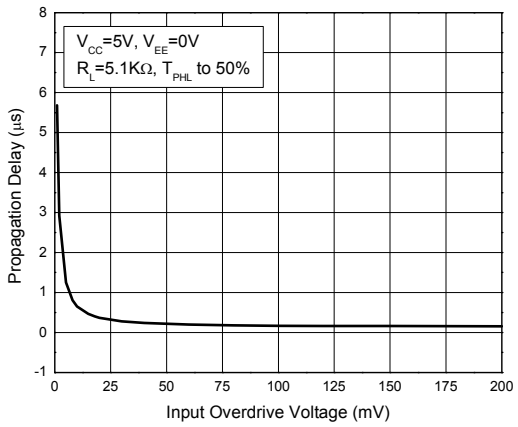


Performance Characteristics (@T_A = +25°C, unless otherwise specified.) (Cont.)

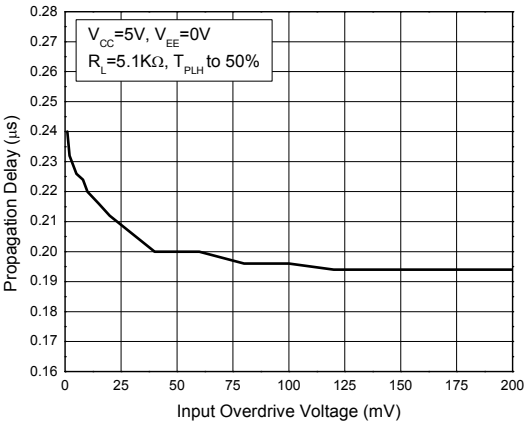
Propagation Delay vs. Temperature



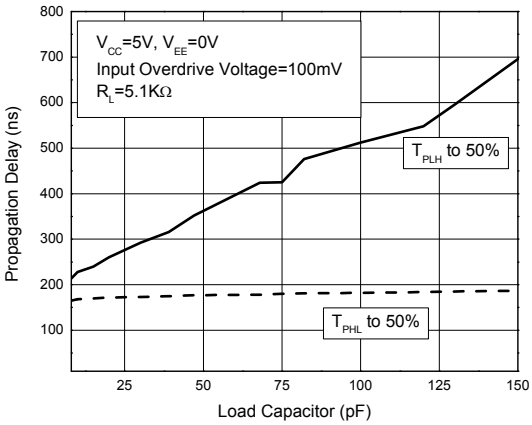
Propagation Delay vs. Input Overdrive Voltage



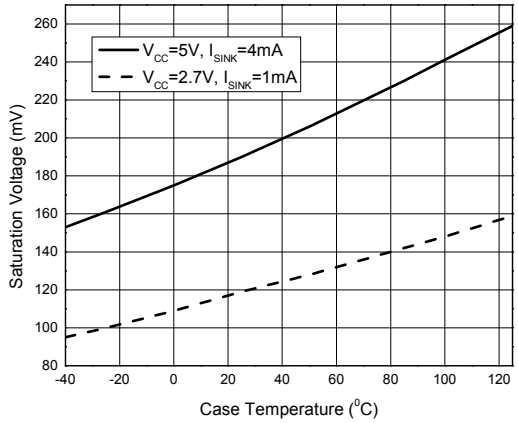
Propagation Delay vs. Input Overdrive Voltage



Propagation Delay vs. Load Capacitor

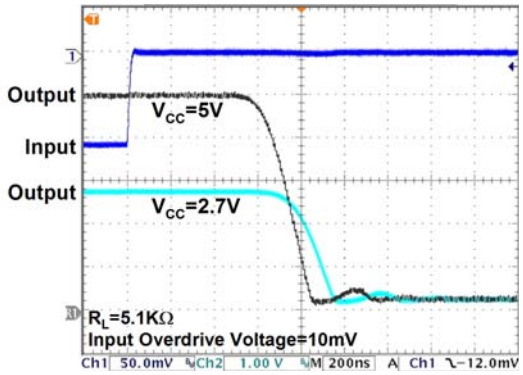


Saturation Voltage vs. Case Temperature

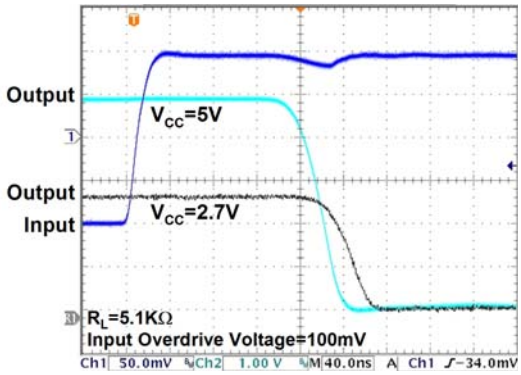


Performance Characteristics (@T_A = +25°C, unless otherwise specified.) (Cont.)

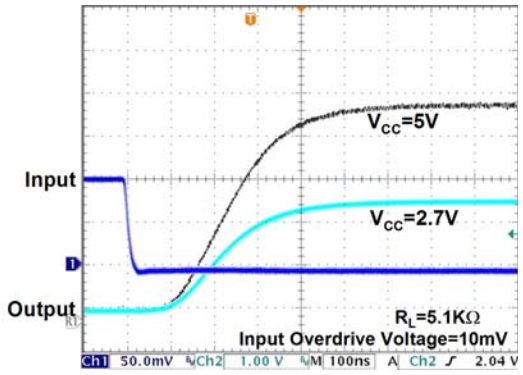
Response Time for Positive Transition



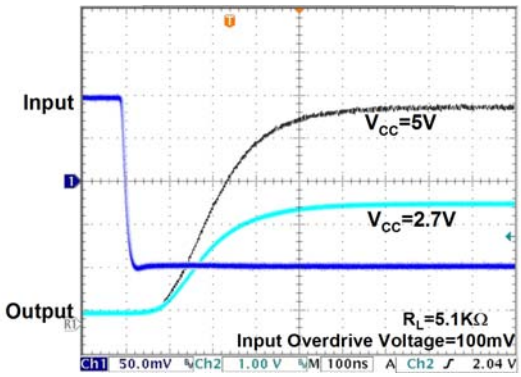
Response Time for Positive Transition



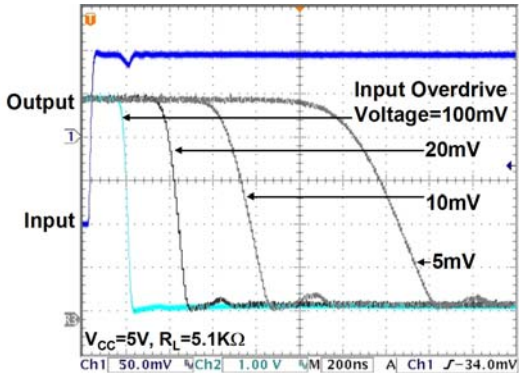
Response Time for Negative Transition



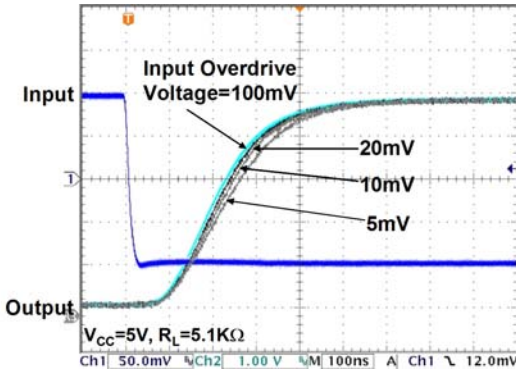
Response Time for Negative Transition



Response Time for Positive Transition

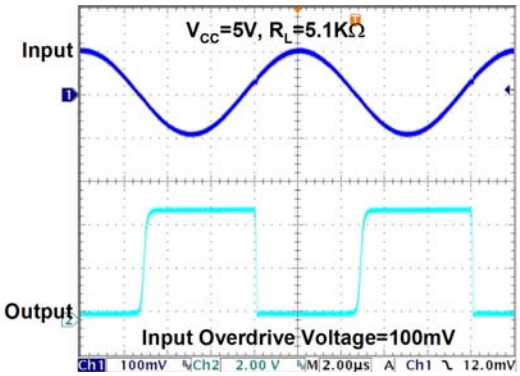


Response Time for Negative Transition

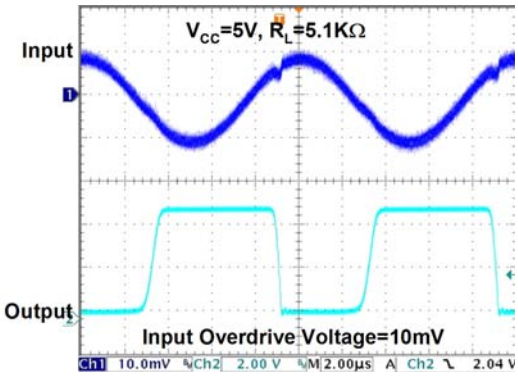


Performance Characteristics (@T_A = +25°C, unless otherwise specified.) (Cont.)

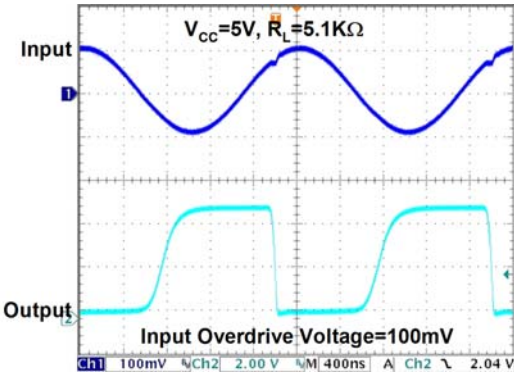
100kHz Response



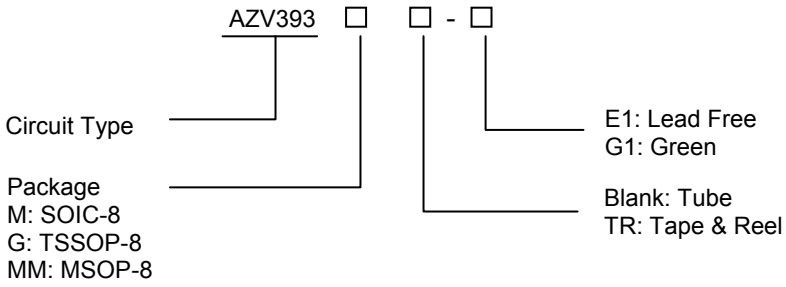
100kHz Response



500kHz Response



Ordering Information

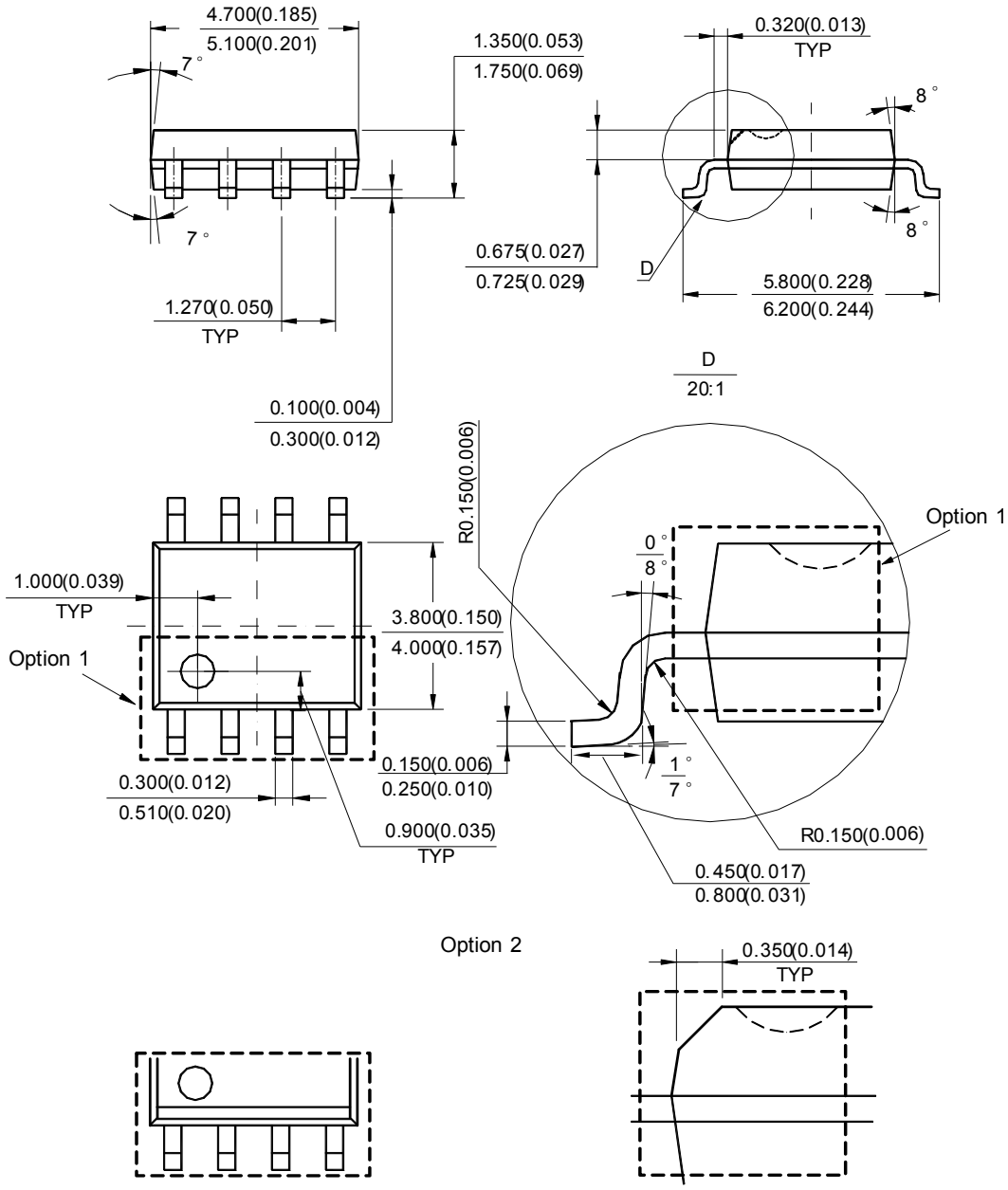


Package	Temperature Range	Part Number		Marking ID		Packing Type
		Lead Free	Green	Lead Free	Green	
SOIC-8	-40 to +85°C	AZV393M-E1	AZV393M-G1	AZV393M-E1	AZV393M-G1	Tube
		AZV393MTR-E1	AZV393MTR-G1	AZV393M-E1	AZV393M-G1	Tape & Reel
TSSOP-8	-40 to +85°C	AZV393G-E1	AZV393G-G1	EG3D	GG3D	Tube
		AZV393GTR-E1	AZV393GTR-G1	EG3D	GG3D	Tape & Reel
MSOP-8	-40 to +85°C	AZV393MM-E1	AZV393MM-G1	AZV393MM-E1	AZV393MM-G1	Tube
		AZV393MMTR-E1	AZV393MMTR-G1	AZV393MM-E1	AZV393MM-G1	Tape & Reel

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with “G1” suffix are available in green packages.

Package Outline Dimensions (All dimensions in mm(inch).)

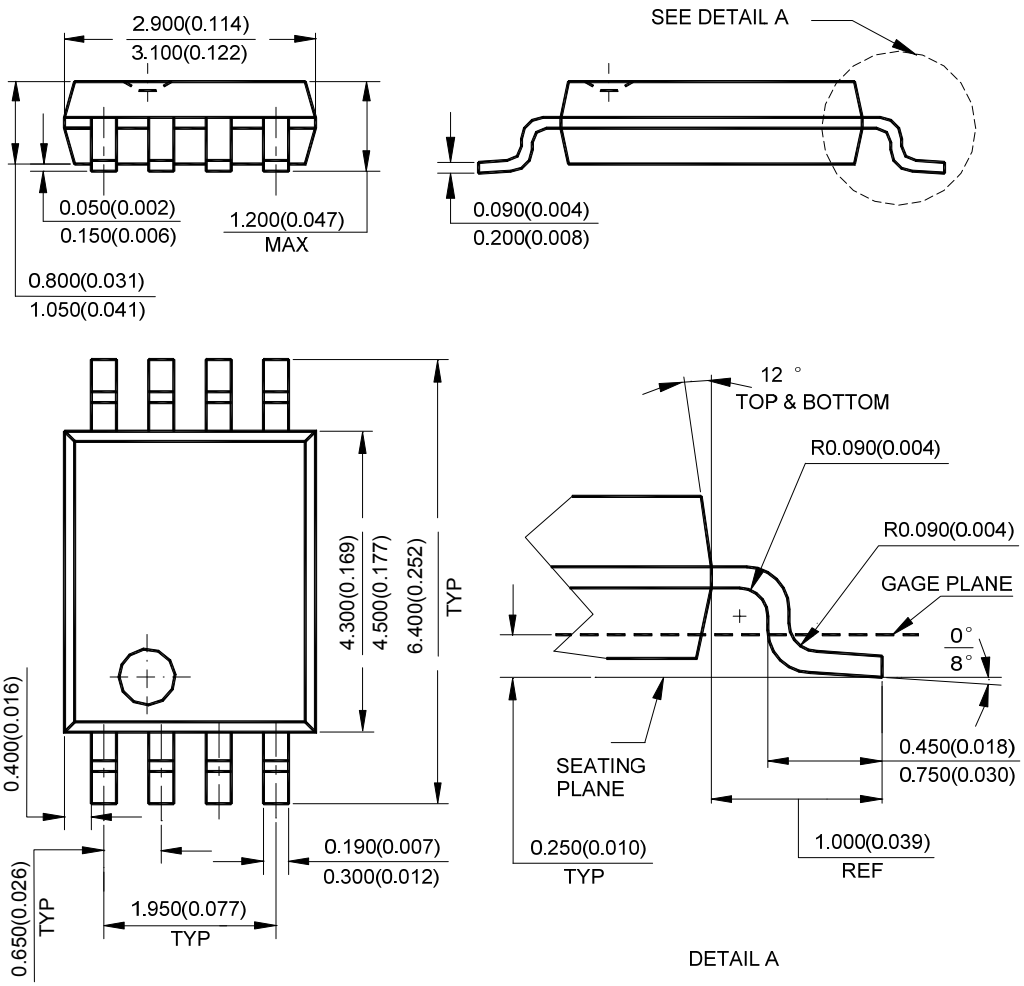
SOIC-8



Note: Eject hole, oriented hole and mold mark is optional .

Package Outline Dimensions (Cont.) (All dimensions in mm(inch).)

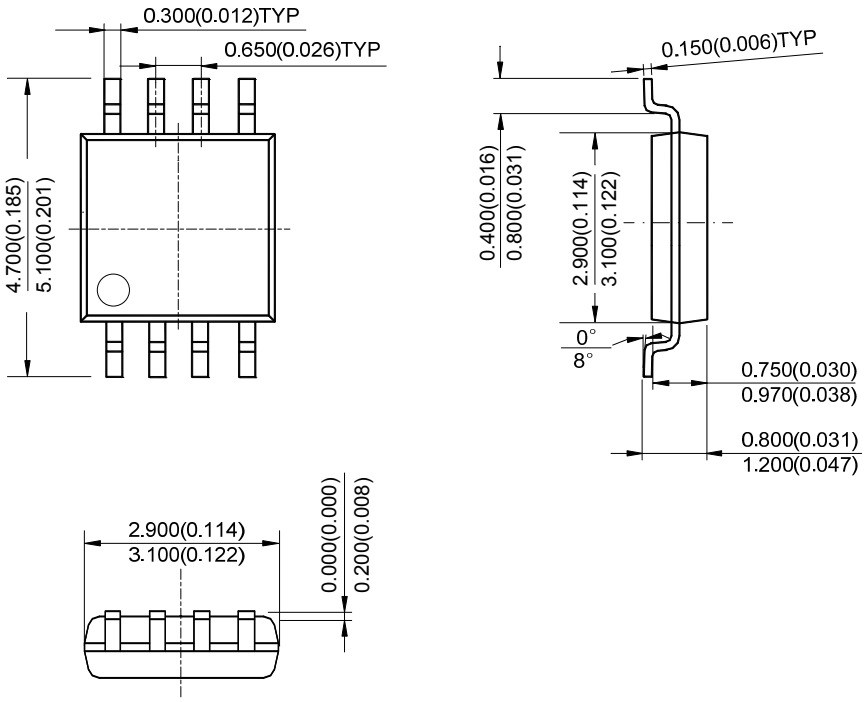
TSSOP-8



Note: Eject hole, oriented hole and mold mark is optional.

Package Outline Dimensions (Cont.) (All dimensions in mm(inch).)

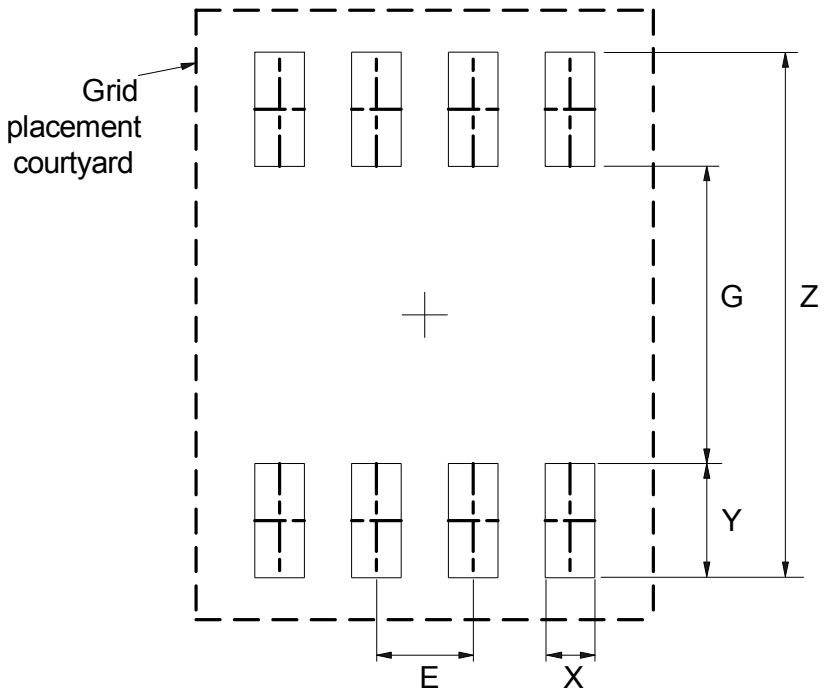
MSOP-8



Note: Eject hole, oriented hole and mold mark is optional.

Suggested Pad Layout

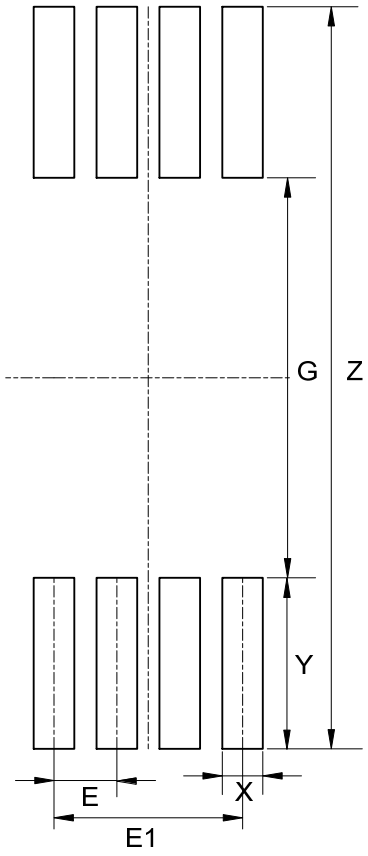
SOIC-8



Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)	Y (mm)/(inch)	E (mm)/(inch)
Value	6.900/0.272	3.900/0.154	0.650/0.026	1.500/0.059	1.270/0.050

Suggested Pad Layout (Cont.)

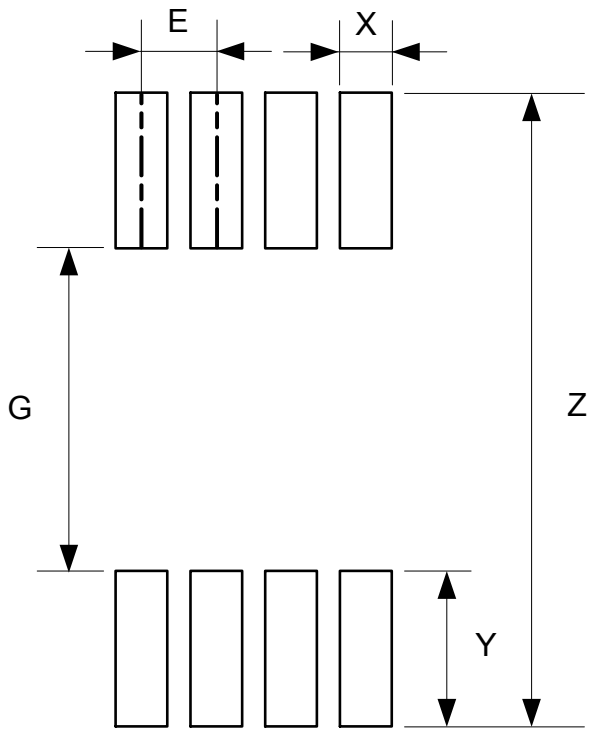
TSSOP-8



Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)	Y (mm)/(inch)	E (mm)/(inch)	E1 (mm)/(inch)
Value	7.720/0.304	4.160/0.164	0.420/0.017	1.780/0.070	0.650/0.026	1.950/0.077

Suggested Pad Layout (Cont.)

MSOP-8



Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)	Y (mm)/(inch)	E (mm)/(inch)
Value	5.500/0.217	2.800/0.110	0.450/0.018	1.350/0.053	0.650/0.026

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