Automotive Fault Protected High-Speed CAN FD Transceiver

Features

- Meets the ISO 11898-2:2024 and SAE J2284-1 to SAE J2284-5 Physical Layer Standards
- Supports Classical CAN and Optimized CAN FD up to 8 Mbps Data Rates
- Short and Symmetrical Propagation Delay and Fast Loop Delay for Enhanced Timing Margin
- 5-V Power Supply, I/O Voltage Range Supports 1.7-V to 5.5-V MCU Interface (V variants only)
- Ideal Passive Behavior to CAN Bus when Unpowered
- Glitch-free on CAN Bus and RXD when Power on/off
- Protection Feature:
  - Bus HBM ESD Protection up to 15 kV and IEC 61000-4-2 ESD Protection
  - Bus Fault Protection: ±45 V
  - VCC and VIO (V variants only) Undervoltage Protection
  - TXD Dominant Time-out Function and Bus-Dominant Time-out
  - Thermal Shutdown Protection
- Available in SOP8 Package and leadless DFN3X3-8 Package with Improved Automated Optical Inspection (AOI) Capability
- AEC-Q100 Qualified for Automotive Applications，Grade 1

Applications

- All Devices Supporting Highly Loaded CAN Networks
- Automotive and Transportation
  - Body Electronics / Lighting
  - Power Train / Chassis
  - Infotainment / Cluster
  - ADAS / Safety

Description

The TPT1057VQ and the TPT1057Q are CAN transceivers that meet the ISO11898-2:2024, SAEJ2284-1 to SAE J2284-5 high-speed CAN (Controller Area Network) physical layer standards.

The devices are designed to be used in CAN FD networks up to 5 Mbps with enhanced timing margin and higher data rates in long and highly loaded networks and support up to 8-Mbps data rates in simple CAN bus networks. The system design can be optimized with excellent electromagnetic compatibility (EMC) and electrostatic discharge (ESD) performance. The TPT1057VQ has a secondary power supply input VIO pin for I/O level shifting to support 1.8-V, 2.5-V, 3.3-V, and 5-V MCU logic levels directly. This family has a silent mode which is also commonly referred to as the listen-only mode.

As designed, the devices feature bus fault protection from −45 V to +45 V, TXD dominant time-out (DTO), over-temperature shutdown (TSD). Additionally, all devices include power-off ideal passive behavior fail-safe features to enhance the network robustness.

The TPT1057VQ and the TPT1057Q are available in SOP8 and DFN3X3-8 packages and are AEC-Q100 qualified for automotive applications.

Typical Application Circuit

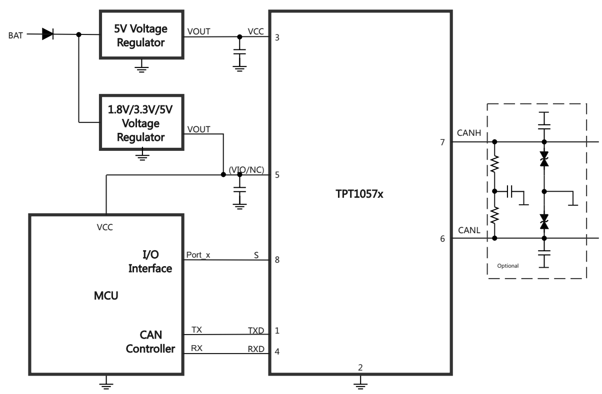


Table of Contents

Product Family Table

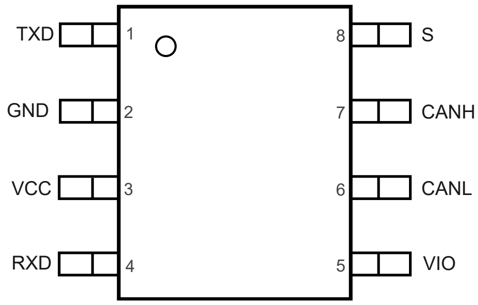
Order Number	VCC (V)	VIO (V)	BUS Protection (V)	Package
TPT1057VQ-SO1R-S	4.5 to 5.5	1.7 to 5.5	±45	SOP8
TPT1057VQ-DFCR-S	4.5 to 5.5	1.7 to 5.5	±45	DFN3X3-8
TPT1057Q-SO1R-S	4.5 to 5.5	NC	±45	SOP8
TPT1057Q-DFCR-S	4.5 to 5.5	NC	±45	DFN3X3-8

Revision History

Date	Revision	Notes
2024-1-05	Rev.Pre.0	Initial version
2024-9-25	Rev.A.0	Released version
2025-2-19	Rev.A.1	Updated the minimum values for 8-Mbps t_{BIT_BUS} and 8-Mbps t_{BIT_RXD}

Pin Configuration and Functions

TPT1057VQ
SOP8 Package
Top View



TPT1057VQ
DFN3X3-8 Package
Top View

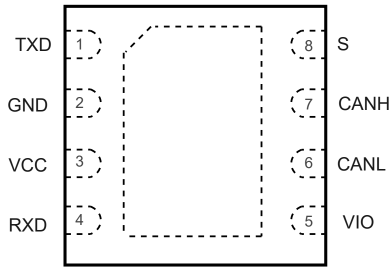
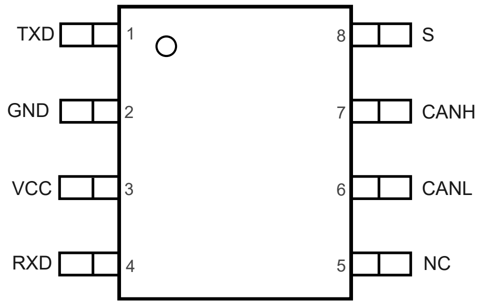


Table 1. Pin Functions: TPT1057VQ

Pin		I/O	Description
No.	Name		
1	TXD	I	CAN transmit data input, internal weak pull-up (LOW for dominant and HIGH for recessive bus states)
2	GND (1)	GND	Ground
3	VCC	POWER	Transceiver 5-V supply voltage
4	RXD	O	CAN receive data output (LOW for dominant and HIGH for recessive bus states)
5	VIO	POWER	Transceiver I/O level shifting supply voltage
6	CANL	BUS I/O	Low-level CAN bus input/output line
7	CANH	BUS I/O	High-level CAN bus input/output line
8	S	I	Silent mode control input, internal weak pull-up (active high)

(1) The DFN package die is connected to both the GND pin and the exposed pad. The GND pin must be soldered to the board ground and for enhanced thermal and electrical performance, the exposed pad is also recommended to be soldered to board ground.

TPT1057Q
SOP8 Package
Top View



TPT1057Q
DFN3X3-8 Package
Top View

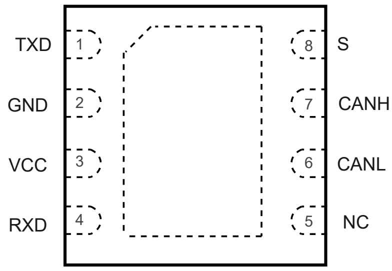


Table 2. Pin Functions: TPT1057Q

Pin		I/O	Description
No.	Name		
1	TXD	I	CAN transmit data input (LOW for dominant and HIGH for recessive bus states)
2	GND (1)	GND	Ground
3	VCC	Power	Transceiver 5 V supply voltage
4	RXD	O	CAN receive data output (LOW for dominant and HIGH for recessive bus states)
5	NC	−	Not connected, no bonding
6	CANL	Bus I/O	Low-level CAN bus input/output line
7	CANH	Bus I/O	High-level CAN bus input/output line
8	S	I	Silent mode control input, internal weak pull-up (active high)

(1) The DFN package die is connected to both the GND pin and the exposed pad. The GND pin must be soldered to the board ground and for enhanced thermal and electrical performance, the exposed pad is also recommended to be soldered to board ground.

Specifications

Absolute Maximum Ratings (1)

Parameter		Min	Max	Unit
V_{CC}	Supply Voltage Range	−0.3	7.0	V
V_{IO}	I/O Level-shifting Voltage Range	−0.3	7.0	V
V_{BUS}	CAN Bus Voltage Range (CANH, CANL)	−45	45	V
V_{BUS_DIFF}	Differential Output Voltage of CAN Bus (CANH - CANL)	−45	45	V
V_{LOGIC_IN}	Logic Input Terminal Voltage Range (TXD, S)	−0.3	7.0	V
V_{LOGIC_OUT}	Logic Output Terminal Voltage Range (RXD)	−0.3	7.0	V
T_J	Junction Temperature	−40	150	°C
T_{STG}	Storage Temperature	−55	150	°C

(1) Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

ESD and Transient Ratings

Parameter		Condition	Min	Max	Unit
V_{ESD}	Electrostatics Discharge (1)(2)	IEC61000-4-2(150pF, 330Ω discharge circuit), contact discharge on bus pins (CANH, CANL)	−8	8	kV
		Human Body Model (HBM) on bus pins (CANH, CANL)	−15	15	kV
		Human Body Model (HBM) on all pins	−8	8	kV
		Charged Device Model (CDM) on all pins	−750	750	V
V_{TRAN}	Transient Immunity ISO 7637-2 on Bus Pins	Pulse1	−100		V
		Pulse2a		75	V
		Pulse3a	−150		V
		Pulse3b		100	V

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.
(2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

Recommended Operating Conditions

	Parameter	Min	Max	Unit
V_{IO}	Input/output voltage, TXD, RXD, S	1.7	5.5	V
V_{CC}	Power Supply	4.5	5.5	V
$I_{OH(RXD)}$	RXD Terminal High-Level Output Current	−1		mA
$I_{OL(RXD)}$	RXD Terminal Low-Level Output Current		1	mA
T_J	Operating Junction Temperature	−40	150	°C

Thermal Information

Package Type	θ_{JA}	θ_{JC}	Unit
SOP8	118	48	°C/W
DFN3x3-8	51	23	°C/W

Electrical Characteristics

All test conditions: V_{CC} = 4.5 V to 5.5 V, V_{IO} = 1.7 V to 5.5 V, R_L = 60 Ω, T_J = −40°C to 150°C, unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Pin VCC; Power Supply						
V_{CC}	Supply Voltage		4.5		5.5	V
$V_{UVD\_SWOFF\_VCC}$	Switch-off Undervoltage Detection on V_{CC} for Protected Mode		3.5	4.0	4.3	V
I_{CC}	Normal Mode Supply Current	Dominant, V_{TXD} = 0 V; t < t_{TXD_DTO}		42	60	mA
		Dominant bus fault, V_{TXD}= 0 V; short circuit on bus lines; −40 V < (V_{CANH} = V_{CANL}) < +40 V			110	mA
		Recessive; V_{TXD} = V_{IO}		5	10	mA
	Silent Mode Supply Current	Device with the "V" suffix; V_S = V_{IO}		0.8	1.2	mA
		Device without the "V" suffix; V_S = V_{CC}		0.8	1.2	mA
Pin VIO; IO Level Adapter Power Supply (variants with V suffix only)						
V_{IO}	Supply Voltage		1.7		5.5	V
V_{UV_VIO}	Rising Undervoltage Detection on V_{IO} for Protected Mode				1.65	V
	Falling Undervoltage Detection on V_{IO} for Protected Mode		1.35			V
V_{HYS_UVVIO}	Hysteresis Voltage on V_{IO} Undervoltage Detection (1)		50	100		mV
I_{IO}	Normal Mode Supply Current	Dominant; V_{TXD} = 0 V		150	300	µA
		Recessive; V_{TXD} = V_{IO}		17	30	µA
	Silent Mode Supply Current	V_S = V_{IO}		8.0	19	µA
Pin S; Silent Mode Control Input						
V_{IH}	High-level Input Voltage	V_{IO} = V_{CC} for variants without V suffix	0.7 × V_{IO}		V_{IO} + 0.3	V
V_{IL}	Low-level Input Voltage	V_{IO} = V_{CC} for variants without V suffix	−0.3		0.3 × V_{IO}	V
V_{HYS_S}	Hysteresis Voltage on pin S (1)		50	300		mV
I_{IH}	High-level Input Current	V_S = V_{IO}	−1		1	µA
I_{IL}	Low-level Input Current	V_S = 0 V	−15		−1	µA
C_{IN}	Input Capacitance (1)				10	pF
Pin TXD; CAN Transit Data Input						

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{IH}	High-level Input Voltage	$V_{IO} = V_{CC}$ for variants without V suffix	0.7 × V_{IO}		V_{IO} + 0.3	V
V_{IL}	Low-level Input Voltage	$V_{IO} = V_{CC}$ for variants without V suffix	−0.3		0.3 × V_{IO}	V
V_{HYS_TXD}	Hysteresis Voltage on pin TXD (1)		50	300		mV
I_{IH}	High-level Input Current	$V_{TXD} = V_{IO}$	−5		5	µA
I_{IL}	Low-level Input Current	V_{TXD} = 0 V	−270		−25	µA
C_{IN}	Input Capacitance (1)				10	pF
Pin RXD; CAN Receive Data Output						
I_{OH}	High-level Output Current	$V_{RXD} = V_{IO}$ - 0.4 V	−10		−1	mA
I_{OL}	Low-level Output Current	V_{RXD} = 0.4 V; Bus dominant	1		30	mA
Pin CANH, CANL; Bus lines						
V_{O_DOM}	Dominant Output Voltage, CANH	Dominant; V_{TXD} = 0 V; t < t_{TXD_DTO}; 50 Ω ≤ R_L ≤ 65 Ω	2.75	3.5	4.5	V
	Dominant Output Voltage, CANL	Dominant, V_{TXD} = 0 V; t < t_{TXD_DTO}; 50 Ω ≤ R_L ≤ 65 Ω	0.5	1.5	2.25	V
$V_{DOM\_TX\_SYM}$	Transmitter Dominant Voltage Symmetry	$V_{DOM\_TX\_SYM} = V_{CC} − V_{CANH} − V_{CANL}$	−300		300	mV
V_{SYM}	Transmitter Symmetry (Dominant or Recessive) (1)	$V_{SYM} = (V_{CANH} + V_{CANL})/ V_{CC}$; C_{SPLIT} = 4.7 nF; f_{TXD} = 250 kHz, 1 MHz, 2.5 MHz	0.9		1.1	V/V
V_{OD_DOM}	Dominant Differential Output Voltage	Normal mode; V_{TXD} = 0 V; t < t_{TXD_DTO}; 50 Ω ≤ R_L ≤ 65 Ω	1.5		3.0	V
		Normal mode; V_{TXD} = 0 V; t < t_{TXD_DTO}; 45 Ω ≤ R_L ≤ 70 Ω	1.4		3.3	V
		Normal mode; V_{TXD} = 0 V; t < t_{TXD_DTO}; R_L = 2240 Ω	1.5		5.0	V
V_{OD_REC}	Recessive Differential Output Voltage	Normal / Silent mode; $V_{TXD} = V_{IO}$; no load	−50		50	mV
V_{O_REC}	Recessive Output Voltage	Normal/Silent mode; $V_{TXD} = V_{IO}$; no load	2.0	2.5	3.0	V
$V_{TH\_RX\_DIF}$	Differential Receiver Threshold Voltage	Normal/Silent mode; t < t_{TXD_DTO}; −12 V ≤ V_{CANH}/ V_{CANL} ≤ +12 V	0.5		0.9	V
V_{REC_RX}	Receiver Recessive Voltage (1)	Normal/Silent mode; t < t_{TXD_DTO}; −12 V ≤ V_{CANH}/ V_{CANL} ≤ +12 V	−4		0.5	V
V_{DOM_RX}	Receiver Dominant Voltage (1)	Normal/Silent mode; t < t_{TXD_DTO}; −12 V ≤ V_{CANH}/ V_{CANL} ≤ +12 V	0.9		9.0	V
$V_{HYS\_RX\_DIF}$	Differential Receiver Hysteretic Threshold (1)	Normal/Silent mode; t < t_{TXD_DTO}; −12 V ≤ V_{CANH}/ V_{CANL} ≤ +12 V	100		300	mV

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_{O\_SC\_DOM}$	Dominant Short-Circuit Output Current	V_{TXD} = 0 V; t < $t_{TO\_DOM\_TXD}$; V_{CC} = 5 V; −40 V ≤ V_{CANH}/ V_{CANL} ≤ +40 V		55	100	mA
$I_{O\_SC\_REC}$	Recessive Short-Circuit Output Current	V_{TXD} = V_{IO}; t < $t_{TO\_DOM\_TXD}$; V_{CC} = 5 V; −40 V ≤ V_{CANH}/ V_{CANL} ≤ +40 V	−3		3	mA
I_L	Unpowered Bus Input Leakage Current	V_{CC} = V_{IO} = 0 V or V_{CC} = V_{IO} pins shorted to GND via 47kΩ; V_{CANH} = V_{CANL} = 5 V	−10		10	μA
R_{IN}	CANH or CANL Input Resistance	−2 V ≤ V_{CANH} / V_{CANL} ≤ +7 V	9	17	28	kΩ
ΔR_{IN}	Input Resistance Deviation	−2 V ≤ V_{CANH} / V_{CANL} ≤ +7 V	−3		3	%
R_{IN_DIF}	Differential Input Resistance	−2 V ≤ V_{CANH} / V_{CANL} ≤ +7 V	19	34	52	kΩ
C_{IN}	Common Mode Input Capacitance (1)				20	pF
C_{IN_DIF}	Differential Input Capacitance (1)				10	pF
Temperature Detection						
T_{J_SD}	Thermal Shutdown Temperature (1)		160	175	190	℃
$T_{J\_SD\_HYS}$	Thermal Shutdown Hysteresis (1)			20		℃

(1) The data is based on bench tests and design simulation.

AC Timing Requirements

All test conditions: V_{CC} = 4.5 V to 5.5 V, V_{IO} = 1.7 V to 5.5 V, R_L = 60 Ω, T_J = −40°C to 150°C, unless otherwise noted.

Parameter		Conditions	Min	Typ	Max	Unit
CAN Timing Characteristics						
$t_{D\_TXD\_BUSDOM}$	Delay time from TXD to bus dominant	Normal mode			90	ns
$t_{D\_TXD\_BUSREC}$	Delay time from TXD to bus recessive	Normal mode			90	ns
$t_{D\_BUSDOM\_RXD}$	Delay time from bus dominant to RXD	Normal mode			110	ns
$t_{D\_BUSREC\_RXD}$	Delay time from bus recessive to RXD	Normal mode			110	ns
$t_{D\_TXDL\_RXDL}$	Loop delay time from TXD low to RXD low	Normal mode			200	ns
$t_{D\_TXDH\_RXDH}$	Loop delay time from TXD high to RXD high	Normal mode			200	ns
CAN FD Timing Characteristics						
t_{BIT_BUS}	Transmitted recessive bit width	2 Mbps, t_{BIT_TXD} = 500 ns	435		530	ns

Parameter		Conditions	Min	Typ	Max	Unit
		5 Mbps, t_{BIT_TXD} = 200 ns	155		210	ns
		8 Mbps, t_{BIT_TXD} = 125 ns (1)	95		135	ns
t_{BIT_RXD}	RXD bit width	2 Mbps, t_{BIT_TXD} = 500 ns	400		550	ns
		5 Mbps, t_{BIT_TXD} = 200 ns	120		220	ns
		8 Mbps, t_{BIT_TXD} = 125 ns (1)	75		145	ns
Δt_{REC}	Receiver timing symmetry	2 Mbps	−65		40	ns
		5 Mbps	−45		15	ns
		8 Mbps (1)	−30		15	ns
Device Timing Characteristics						
t_{TXD_DTO}	TXD dominant time-out time	Normal mode; V_{TXD} = 0 V	0.8	2.0	6.5	ms
t_{MODE}	Mode transition time (1)				50	μs
t_{UVD}	Undervoltage detection time (1)	Pin VCC			30	μs
t_{UVD_OFF}	Switch-off undervoltage detection time (1)	Pin VCC; Device without V suffix			30	μs
		Pin VIO; Device without V suffix			30	μs

(1) The test data is based on bench tests and design simulation.

Parameter Measurement Information

Test Circuit

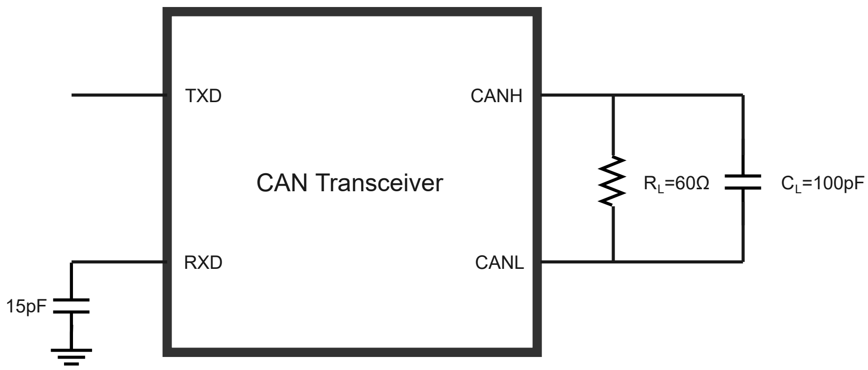


Figure 1. CAN Transceiver Timing Parameter Test Circuit

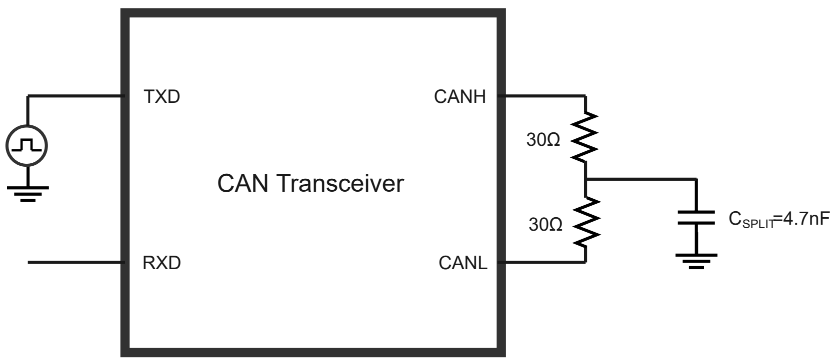


Figure 2. CAN Transceiver Driver Symmetry Test Circuit

Parameter Diagram

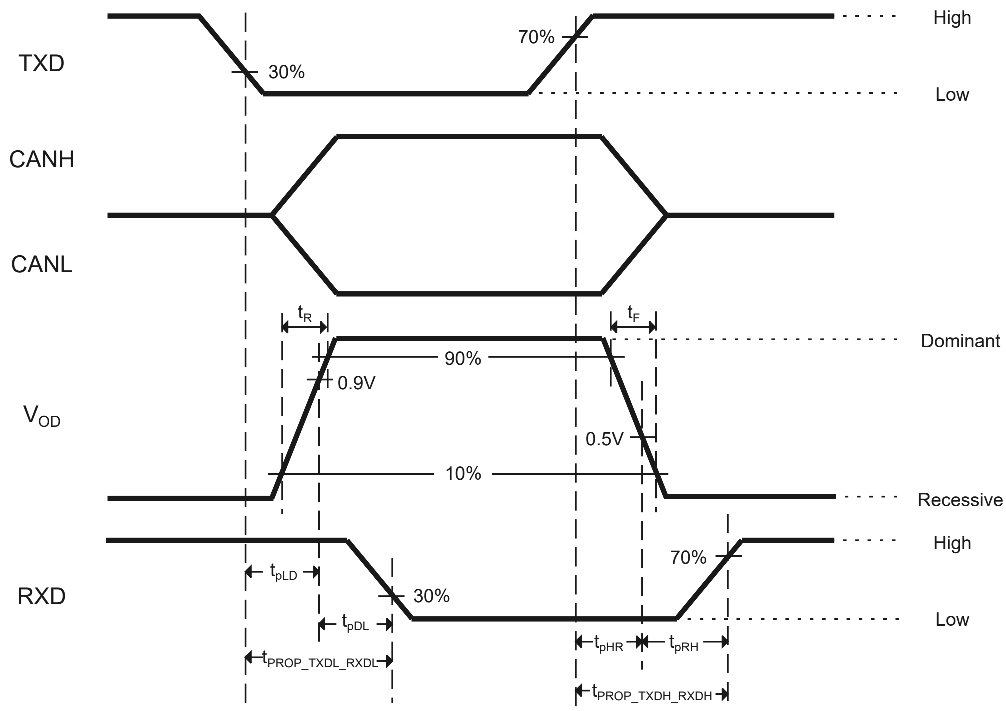


Figure 3. CAN Transceiver Timing Diagram

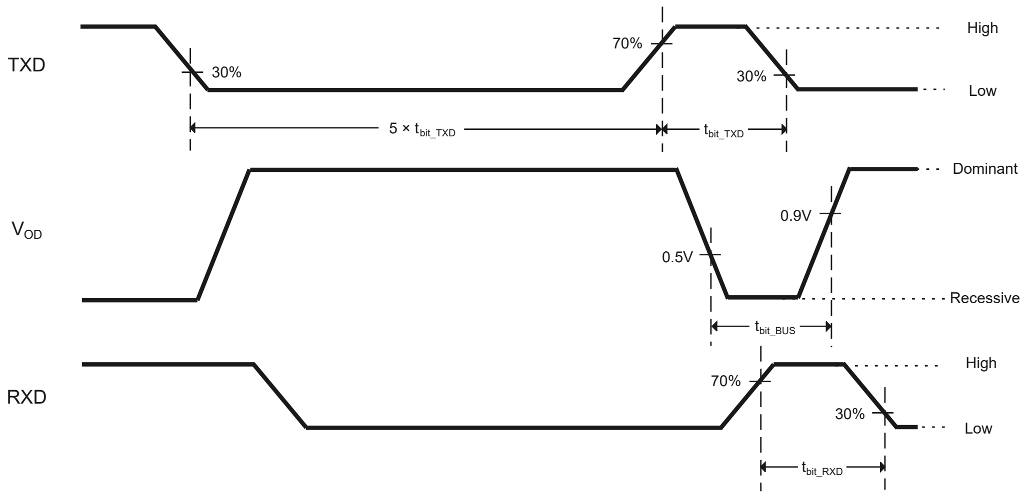


Figure 4. CAN FD Timing Parameter Diagram

Detailed Description

Overview

The TPT1057VQ and the TPT1057Q are CAN transceivers that meet the ISO11898-2:2024, SAEJ2284-1 to SAE J2284-5 high-speed CAN (Controller Area Network) physical layer standards. The devices are designed to be used in CAN FD networks up to 5 Mbps with enhanced timing margin and higher data rates in long and highly loaded networks and support up to 8-Mbps data rates in simple CAN bus networks. The system design can be optimized with excellent electromagnetic compatibility (EMC) and electrostatic discharge (ESD) performance. The TPT1057VQ has a secondary power supply input VIO pin for I/O level shifting to support 1.8-V, 2.5-V, 3.3-V, and 5-V MCU logic levels directly. This family has a silent mode which is also commonly referred to as the listen-only mode. As designed, the devices feature bus fault protection from −45 V to +45 V, TXD dominant time-out (DTO), and over-temperature shutdown (TSD). Additionally, all devices include power-off ideal passive behavior fail-safe features to enhance the network robustness. The TPT1057VQ and the TPT1057Q are available in SOP8 and DFN3X3-8 packages and are AEC-Q100 qualified for automotive applications.

Functional Block Diagram

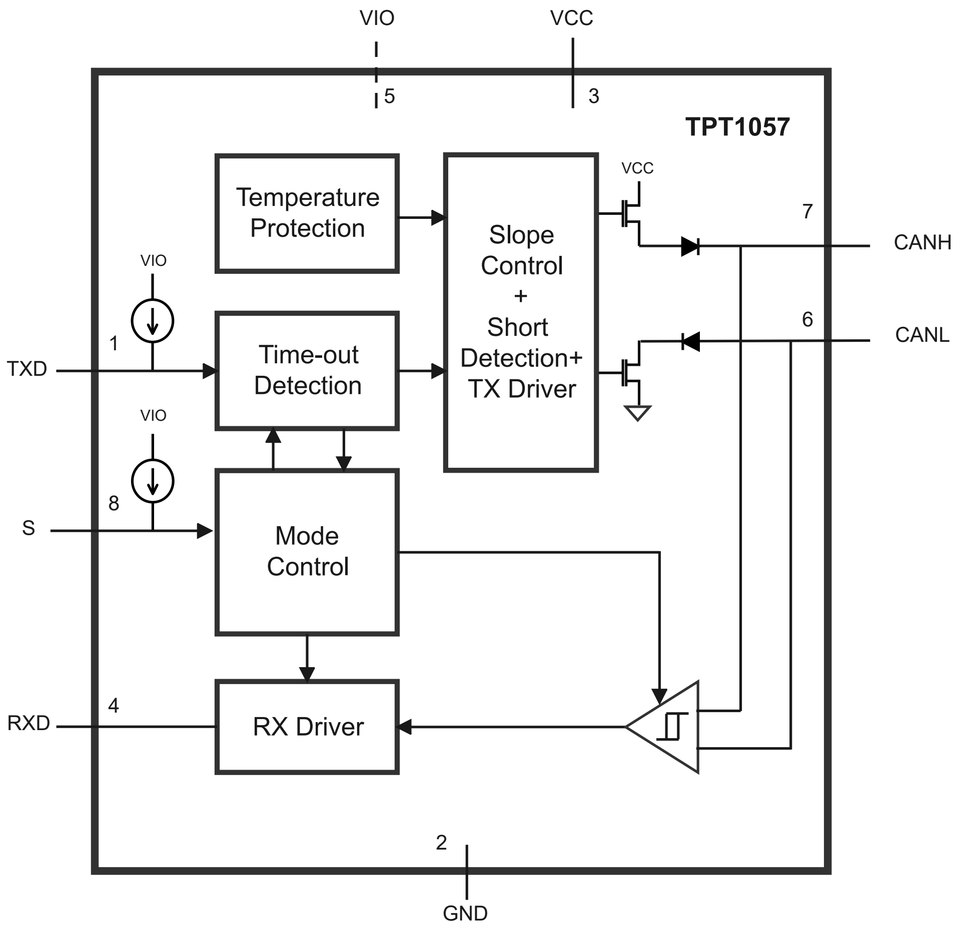


Figure 5. Functional Block Diagram

(1) Pin5 is not connected and VIO = VCC in variants without V suffix

Feature Description

Device Operating Modes

Table 3. Operating modes Table

Mode	Inputs		Outputs	
	S Pin	TXD Pin	CAN BUS State	RXD Pin
Normal	Low	Low	Dominant	L
		H or Open (Internal weak pull-up)	Recessive	Low when bus dominant
				High when bus recessive
Silent	High or Open (Internal weak pull-up)	X (Don't care)	Biased to recessive	Low when bus dominant
				High when bus recessive

Normal Mode

Normal mode is the operating mode of the device. In normal mode, the transceiver transmits and receives data via the bus lines CANH and CANL. The differential receiver converts the analog data on the bus lines into digital data, which is output to the RXD pin. The device switches to Normal mode when a low level on the pin S. The S pin can be connected to the ground using a pull-down resistor if Normal mode is only intended.

Silent Mode

The Silent mode is also known as listen-only mode. In silent mode, the transmitter is disabled, releasing the bus pins to the recessive state, and the receiver and other functions continue to operate as in the normal mode. The device switches to Silent mode when a high level on the pin S. Silent mode can be used to prevent an unwanted CAN controller from disrupting all network communications and reduce power consumption as the transmitter is disabled.

Protection Features

TXD Dominant Time-out

The device detects TXD dominant time-out and prevents a permanent low on the TXD pin, caused by application failure, driving the CAN bus into permanent dominant blocking the CAN bus network. A TXD dominant time-out timer is started when the TXD pin is set low, if the TXD pin remains low for longer than t_{TXD_DTO}, the transmitter is disabled, releasing the bus lines to a recessive state. The TXD dominant time-out timer is reset when the TXD pin is set high.

TXD and S Pins Internal Biasing

There is an internal weak pull-up to VCC (variants without V suffix) or VIO (variants with V suffix) on TXD and S pins to ensure a defined safe state in case these pins are floating. Both pins should be held high in Silent mode to minimize the supply current.

Under-voltage Lockout (UVLO)

The device integrates under-voltage to detect and lockout the circuit of the supply terminal to keep the device in protected mode if the supply voltage drops below the threshold until the supply voltage is higher than the UVLO threshold. This protects the device and system during undervoltage events on supply terminals.

Overtemperature Protection (OTP)

The device is protected against overtemperature conditions. If the junction temperature exceeds the shutdown junction temperature T_{J_SD}, the output drivers are disabled until the virtual junction temperature falls below $T_{J\_SD\_R}$, and TXD sets to high again.

VIO Supply Pin

The VIO pin should be connected to the microcontroller supply voltage, this adjusts the voltage level of TXD, RXD, and S pins to the microcontroller I/O level, this allows the device to interface with 5-V, 3.3-V, and 1.8-V supplied microcontroller without an additional level shifter. For the device without a VIO pin, all block is connected to VCC, pin5 is not connected internally.

Application and Implementation

Note

Information in the following application sections is not part of the 3PEAK's component specification and 3PEAK does not warrant its accuracy or completeness. 3PEAK's customers are responsible for determining suitability of components for their purposes. Customers should validate and test their design implementation to confirm system functionality.

Application Information

The TPT1057xQ is a CAN transceiver that supports CAN FD up to 8 Mbps, with BUS protection voltage from –45 V to +45 V. The VIO of TPT1057VQ can support the voltage level of TXD and RXD from 1.7 V to 5.5 V. The following sections show a typical application of the TPT1057xQ.

Typical Application

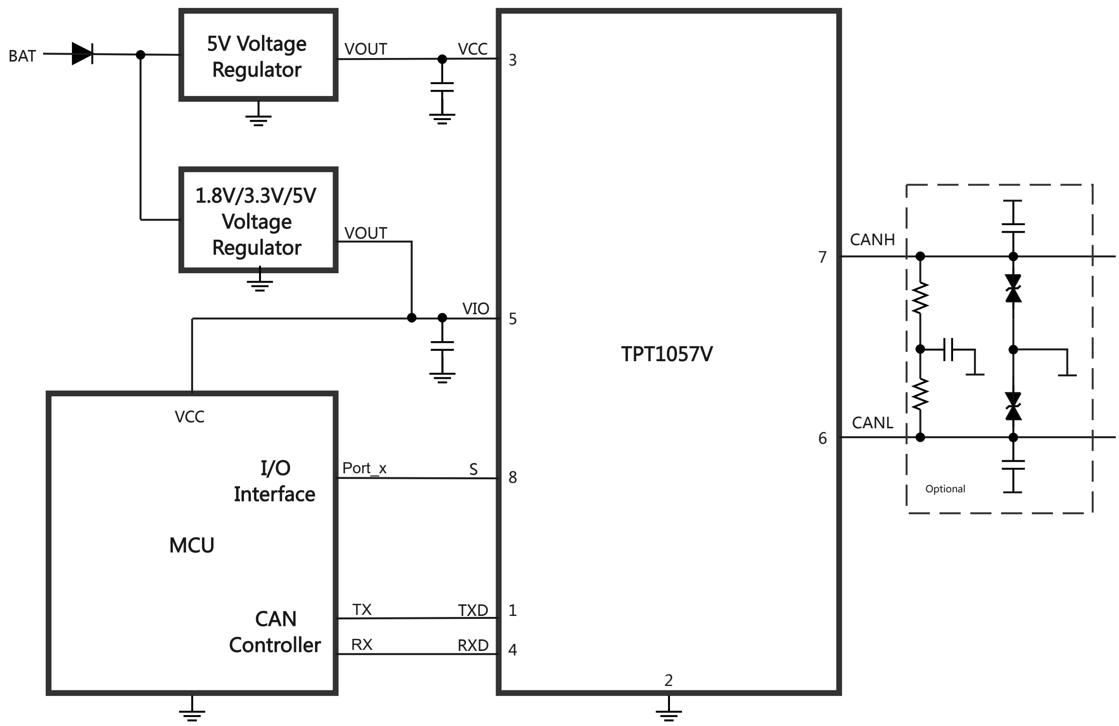


Figure 6. TPT1057VQ Typical Application Circuit

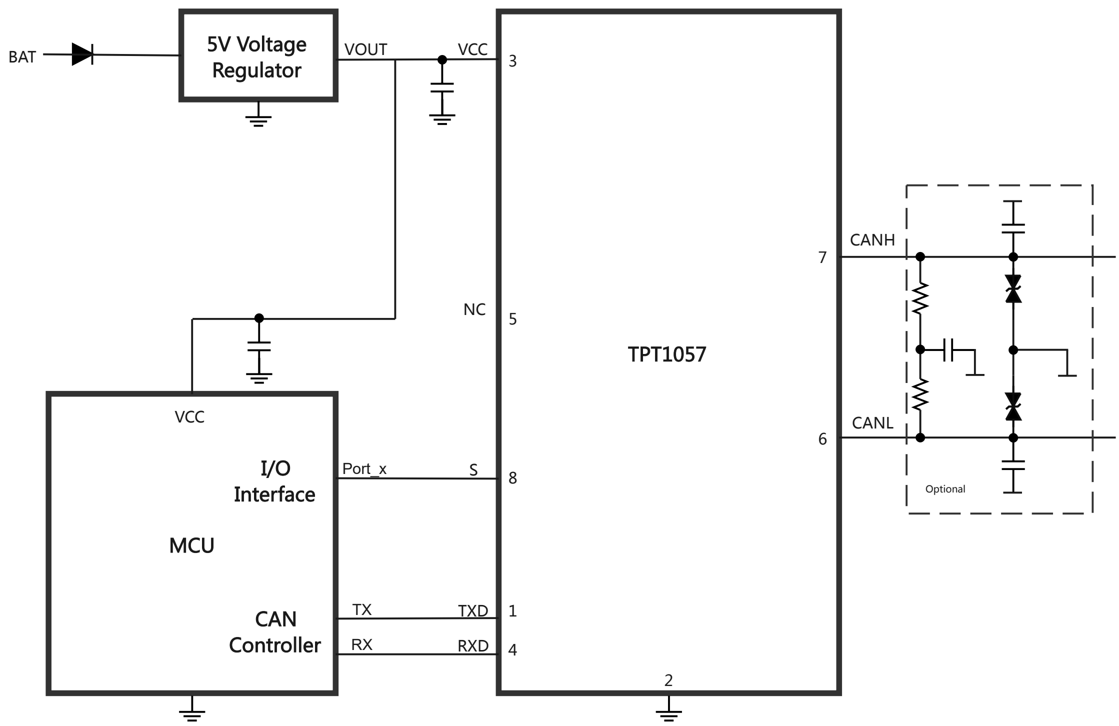
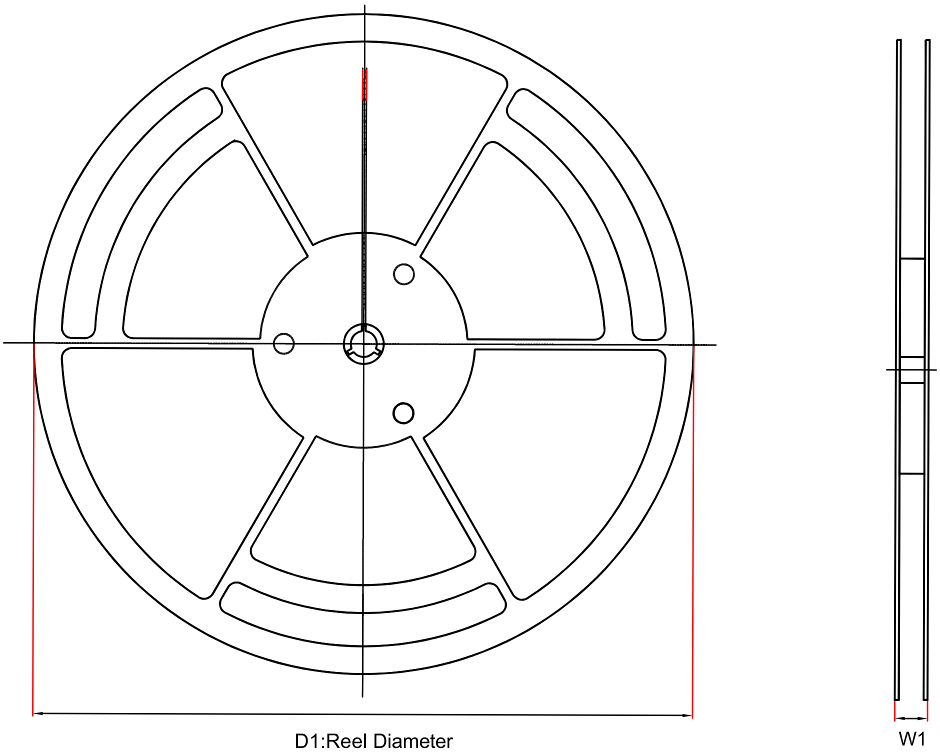
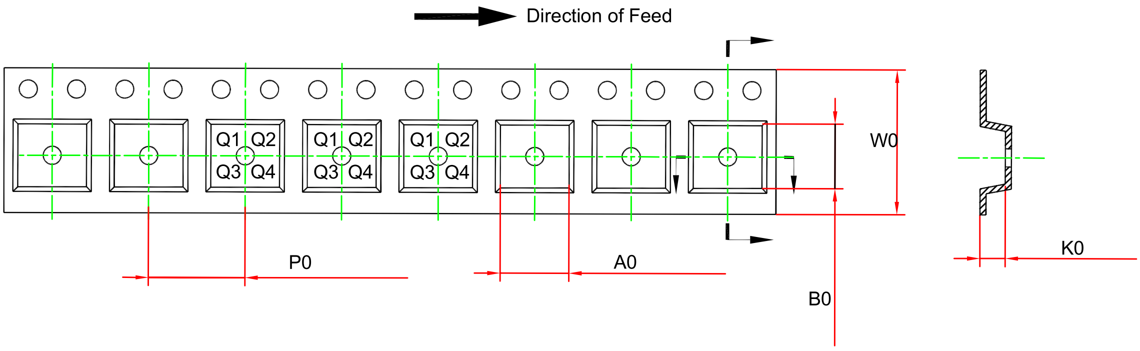


Figure 7. TPT1057Q Typical Application Circuit

Tape and Reel Information



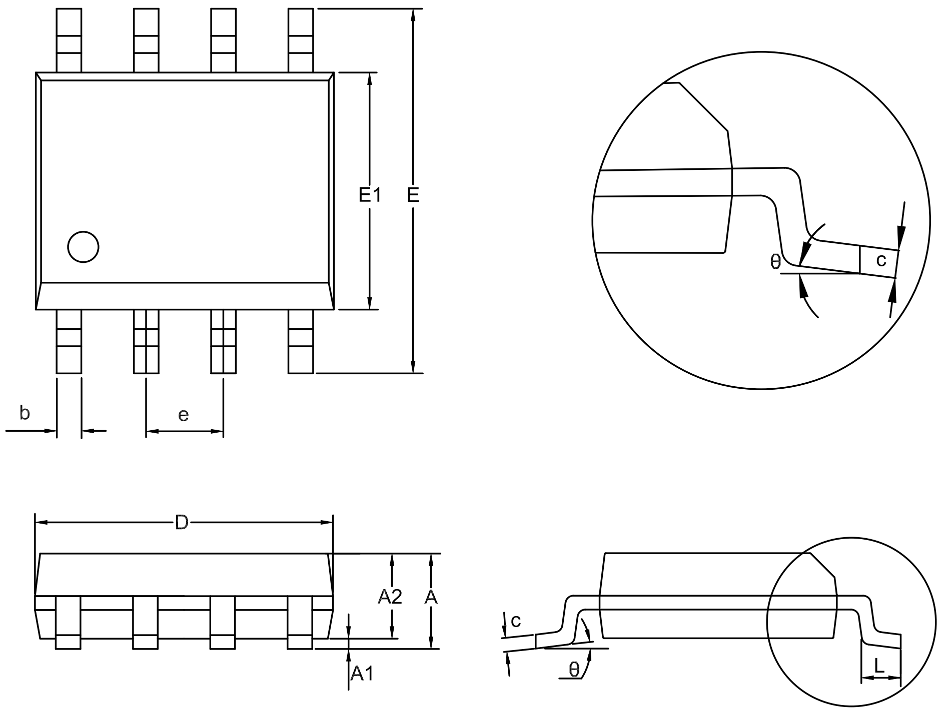


Order Number	Package	D1 (mm)	A0 (mm)	K0(mm)	W0 (mm)	W1 (mm)	B0 (mm)	P0 (mm)	Pin1 Quadrant
TPT1057VQ-SO1R-S	SOP8	330	6.5	2	12	17.6	5.4	8	Q1
TPT1057VQ-DFCR-S	DFN3x3-8	330	3.3	1.1	12	17.6	3.3	8	Q1
TPT1057Q-SO1R-S	SOP8	330	6.5	2	12	17.6	5.4	8	Q1
TPT1057Q-DFCR-S	DFN3x3-8	330	3.3	1.1	12	17.6	3.3	8	Q1

Package Outline Dimensions

SOP8

Package Outline Dimensions SO1(SOP-8-A)



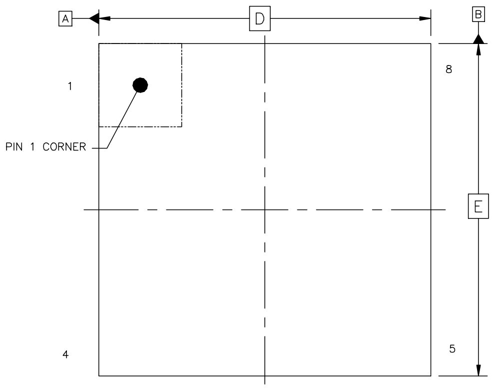
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069
A1	0.050	0.250	0.002	0.010
A2	1.250	1.550	0.049	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
e	1.270 BSC		0.050 BSC	
L	0.400	1.000	0.016	0.039
θ	0	8°	0	8°

NOTES

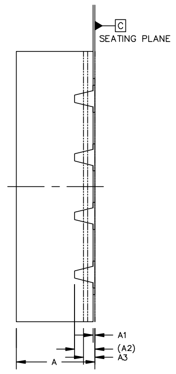
1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

DFN3X3-8

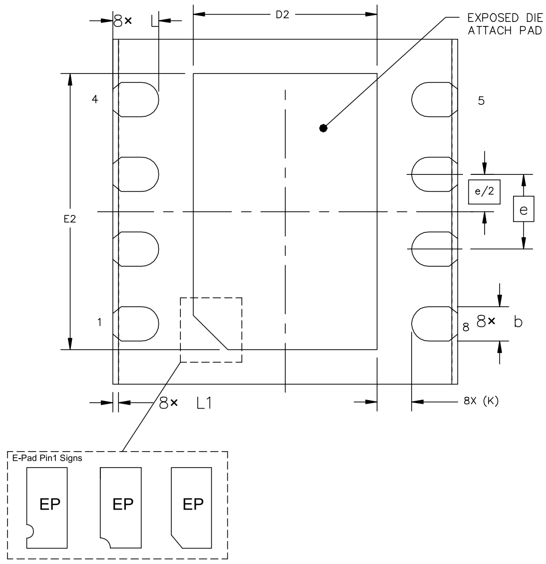
Package Outline Dimensions DFC(DFN3X3-8-WET-H)



TOP VIEW



SIDE VIEW



BOTTOM VIEW

NOTES

1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.
3. The many types of E-pad Pin1 signs may appear in the product.

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.800	0.900	0.031	0.035
A1	0.000	0.050	0.000	0.002
A2	0.150	0.250	0.006	0.010
A3	0.080	0.180	0.003	0.007
D	2.900	3.100	0.114	0.122
D2	1.500	1.700	0.059	0.067
E	2.900	3.100	0.114	0.122
b	0.250	0.350	0.010	0.014
E2	2.300	2.500	0.091	0.098
e	0.650 BSC		0.026 BSC	
L	0.350	0.450	0.014	0.018
L1	0.010	0.090	0.0004	0.004
K	0.300 REF		0.012 REF	

Order Information

Order Number	Operating Temperature Range	Package	Marking Information	MSL	Transport Media, Quantity	Eco Plan
TPT1057VQ-SO1R-S	−40 to 125°C	SOP8	T57VQ	MSL1	Tape and Reel, 4000	Green
TPT1057VQ-DFCR-S	−40 to 125°C	DFN3x3-8	T57VQ	MSL1	Tape and Reel, 4000	Green
TPT1057Q-SO1R-S	−40 to 125°C	SOP8	T157Q	MSL1	Tape and Reel, 4000	Green
TPT1057Q-DFCR-S	−40 to 125°C	DFN3x3-8	T157Q	MSL1	Tape and Reel, 4000	Green

Green: 3PEAK defines "Green" to mean RoHS compatible and free of halogen substances.

IMPORTANT NOTICE AND DISCLAIMER

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