

GL05T to GL24T

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Vishay Semiconductors

ABSOLUTE MAXIMUM RATINGS GL05T							
PARAMETER	TEST	CONDITIONS	SYMBOL	VALUE	UNIT		
Peak pulse current	8/20 µs	Pin 1-2 (pin 3 n.c.)	I _{PPM}	25	А		
Peak pulse power	8/20 µs waveform	Fin 1-2 (pin 3 n.c.)	P _{PP}	300	W		
	Contact discharge	Contact discharge acc. IEC 61000-4-2; 10 pulses		± 8	kV		
ESD immunity	Air discharge acc.	IEC 61000-4-2; 10 pulses	V _{ESD}	± 15	kV		
Blocking voltage	I _B = 1 μA	Pin 2-1 or pin 2-3	VB	70	V		
Operating temperature	Junction temperatu	Junction temperature		-55 to +150	°C		
Storage temperature			T _{STG}	-55 to +150	°C		

ABSOLUTE MAXIMUM RATINGS GL12T							
PARAMETER	TEST	CONDITIONS	SYMBOL	VALUE	UNIT		
Peak pulse current	8/20 µs	Pin 1-2 (pin 3 n.c.)	I _{PPM}	12	А		
Peak pulse power	8/20 µs waveform	Pin 1-2 (pin 3 n.c.)	P _{PP}	300	W		
	Contact discharge	Contact discharge acc. IEC 61000-4-2; 10 pulses		± 8	kV		
ESD immunity	Air discharge acc. I	EC 61000-4-2; 10 pulses	V _{ESD}	± 15	kV		
Blocking voltage	I _B = 1 μA	Pin 2-1 or pin 2-3	VB	70	V		
Operating temperature	Junction temperatu	Junction temperature		-55 to +150	°C		
Storage temperature			T _{STG}	-55 to +150	°C		

ABSOLUTE MAXIMUM RATINGS GL15T								
PARAMETER	TEST	CONDITIONS	SYMBOL	VALUE	UNIT			
Peak pulse current	8/20 μs	Pin 1-2 (pin 3 n.c.)	I _{PPM}	10	A			
Peak pulse power	8/20 µs waveform	Fin 1-2 (pin 3 n.c.)	P _{PP}	300	W			
ESD immunity	Contact discharge	Contact discharge acc. IEC 61000-4-2; 10 pulses		± 8	kV			
ESD immunity	Air discharge acc. I	EC 61000-4-2; 10 pulses	V _{ESD}	± 15	kV			
Blocking voltage	I _B = 1 μA	Pin 2-1 or pin 2-3	VB	70	V			
Operating temperature	Junction temperatu	Junction temperature		-55 to +150	°C			
Storage temperature			T _{STG}	-55 to +150	°C			

ABSOLUTE MAXIMUM RATINGS GL24T							
PARAMETER	TEST	CONDITIONS	SYMBOL	VALUE	UNIT		
Peak pulse current	8/20 µs	Pin 1-2 (pin 3 n.c.)	I _{PPM}	5	A		
Peak pulse power	8/20 µs waveform	Fin 1-2 (pin 3 n.c.)	P _{PP}	300	W		
	Contact discharge	Contact discharge acc. IEC 61000-4-2; 10 pulses		± 8	kV		
ESD immunity	Air discharge acc. I	EC 61000-4-2; 10 pulses	V _{ESD}	± 15	kV		
Blocking voltage	I _B = 1 μA	Pin 2-1 or pin 2-3	V _B	70	V		
Operating temperature	Junction temperatu	Junction temperature		-55 to +150	°C		
Storage temperature			T _{STG}	-55 to +150	°C		

The GLxxT contains an avalanche diode (pin 3-1) and a switching diode (pin 3-2). With pin 1 connected to the signal or data line and pin 2 connected to ground both diodes are in series (pin 3 remains unconnected). The big and robust avalanche diode, driven in reverse direction, provides the working range V_{RWM} of 5 V, 12 V, 15 V or 24 V. Due to its size the capacitance of the avalanche diode is in the range of typ. 260 pF (GL05T) and 65 pF (GL24T). The small switching diode in series has a low capacitance of just 2.5 pF (typ.). As both diodes are in series (with pin 3 not connected) the total capacitance of both diodes measured between pin 1 and 2 is as low as the capacitance of the switching diode.

Before the GLxxT can provide this low capacitance the big capacitance of the avalanche diode has to be charged up with the first signal or data pulses. This is usually no problem for digital signals like USB or other data ports.

With the GLxxT a signal or data line can be protected against positive transients only. For negative transients another GLxxT can be used to provide a back path for the negative transients as well.

Rev. 2.5, 20-May-2021

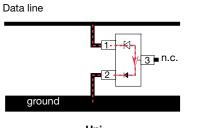
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Not for New Designs

GL05T to GL24T

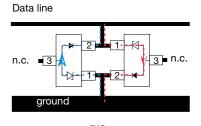
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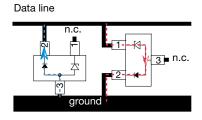


SHAY

Uni Unidirectional clamping performance for positive transients only.



BiSy Bidirectional and Symmetrical clamping performance for positive and negative transients.



BiAs Bidirectional and Asymmetrical clamping performance for positive and negative transients.

ELECTRICAL CHARACTERISTICS GL05T (T_{amb} = 25 °C unless otherwise specified)

pin 1 to pin 2; pin 3 not	connected					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V _{RWM}	-	-	5	V
Reverse voltage	at I _R = 20 μA	V _R	5	-	-	V
Reverse current	at V _R = 5 V	I _R	-	-	20	μA
Reverse breakdown voltage	at I _R = 1 mA	V _{BR}	6.9	7.5	8.0	V
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	-	9.8	V
Reverse clamping voltage	at I _{PP} = 5 A	v ^C	-	-	11	V
Capacitance	at $V_R = 0 V$; f = 1 MHz	CD	-	2.5	5	pF

ELECTRICAL CHARACTERISTICS GL12T ($T_{amb} = 25$ °C unless otherwise specified)

pin 1 to pin 2; pin 3 not	connected					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V _{RWM}	-	-	12	V
Reverse voltage	at I _R = 1 μA	V _R	12	-	-	V
Reverse current	at V _R = 12 V	I _R	-	-	1	μA
Reverse breakdown voltage	at I _R = 1 mA	V _{BR}	13.3	14.3	17.2	V
Reverse clamping voltage	at I _{PP} = 1 A	V _C	-	-	19	V
Reverse clamping voltage	at I _{PP} = 5 A	v _C	-	-	24	V
Capacitance	at $V_R = 0 V$; f = 1 MHz	CD	-	2.5	5	pF

ELECTRICAL CHARACTERISTICS GL15T (T_{amb} = 25 °C unless otherwise specified) pin 1 to pin 2; pin 3 not connected

pin 1 to pin 2, pin 0 not	oonnooted					
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V _{RWM}	-	-	15	V
Reverse voltage	at I _R = 1 μA	V _R	15	-	-	V
Reverse current	at V _R = 15 V	I _R	-	-	1	μA
Reverse breakdown voltage	at I _R = 1 mA	V _{BR}	16.7	17.7	22	V
Povorso clamping voltago	at I _{PP} = 1 A	V _C	-	-	24	V
Reverse clamping voltage	at I _{PP} = 5 A	vc	-	-	33	V
Capacitance	at $V_R = 0$ V; f = 1 MHz	CD	-	2.5	5	pF

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GL05T to GL24T

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ELECTRICAL CHARACTERISTICS GL24T (T _{amb} = 25 °C unless otherwise specified) pin 1 to pin 2; pin 3 not connected								
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT		
Protection paths	Number of lines which can be protected	N _{channel}	-	-	1	lines		
Reverse stand-off voltage	Max. reverse working voltage	V _{RWM}	-	-	24	V		
Reverse voltage	at I _R = 1 μA	V _R	24	-	-	V		
Reverse current	at V _R = 24 V	I _R	-	-	1	μA		
Reverse breakdown voltage	at I _R = 1 mA	V _{BR}	26.7	28.2	33	V		
Powerse elemping veltage	at I _{PP} = 1 A	V	-	-	43	V		
Reverse clamping voltage	at I _{PP} = 5 A	V _C	-	-	55	V		
Capacitance	at $V_R = 0 V$; f = 1 MHz	CD	-	2.5	5	pF		

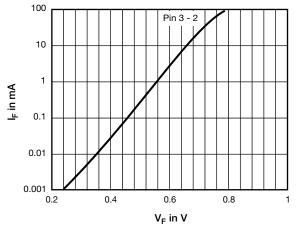


Fig. 1 - Typical Forward Current I_{F} vs. Forward Voltage V_{F}

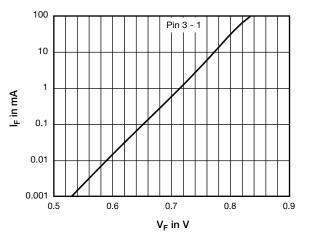


Fig. 2 - Typical Forward Current I_{F} vs. Forward Voltage V_{F}

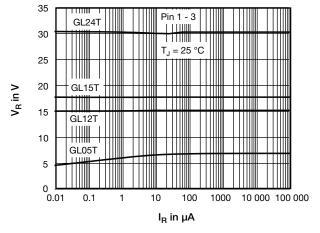


Fig. 3 - Typical Reverse Voltage V_{R} vs. Reverse Current I_{R}

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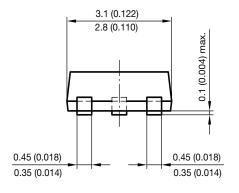


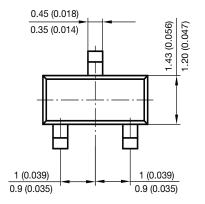
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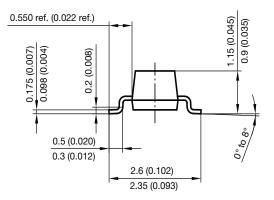
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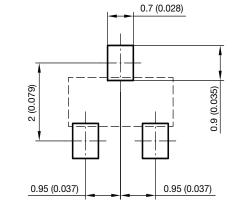
PACKAGE DIMENSIONS in millimeters (inches): SOT-23





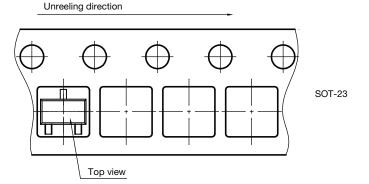


Foot print recommendation:



Document no.: 6.541-5014.01-4 Rev. 8 - Date: 23. Sep. 2009 17418

Orientation in carrier tape SOT-23 S8-V-3929.01-006 (4) 04.02.2010 22607



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