Two-Line ESD-Protection in SOT23

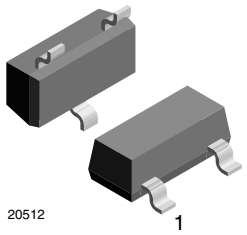
Features

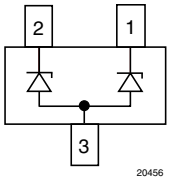
- Two-line ESD-protection device
- ESD-immunity acc. IEC 61000-4-2
  - ± 30 kV contact discharge
  - ± 30 kV air discharge
- Space saving SOT23 package
- AEC Q101 qualified
- Lead (Pb)-free component
- Lead finish = "e3" = matte tin (Sn)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Pb-free

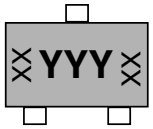
e3

RoHS COMPLIANT





Marking (example only)



YYY = Type code (see table below)
XX = Date code

Ordering Information

Device name	Ordering code	Taped units per reel (8 mm tape on 7" reel)	Minimum order quantity
GSOT03C	GSOT03C-GS08	3000	15 000
GSOT04C	GSOT04C-GS08	3000	15 000
GSOT05C	GSOT05C-GS08	3000	15 000
GSOT08C	GSOT08C-GS08	3000	15 000
GSOT12C	GSOT12C-GS08	3000	15 000
GSOT15C	GSOT15C-GS08	3000	15 000
GSOT24C	GSOT24C-GS08	3000	15 000
GSOT36C	GSOT36C-GS08	3000	15 000

Package Data

Device name	Package name	Marking code	Weight	Molding compound flammability rating	Moisture sensitivity level	Soldering conditions
GSOT03C	SOT23	03C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT04C	SOT23	04C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT05C	SOT23	05C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT08C	SOT23	08C	8.8 mg	UL 94 V-0	MSLlevel 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT12C	SOT23	12C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT15C	SOT23	15C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT24C	SOT23	24C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
GSOT36C	SOT23	36C	8.8 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

Absolute Maximum Ratings

GSOT03C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	30	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	30	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	369	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	504	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT04C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	30	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	30	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	429	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	564	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT05C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	30	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	30	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	480	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	612	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT08C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	18	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	18	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	345	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	400	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT12C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	12	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	12	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	312	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	337	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT15C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	8	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	8	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	230	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	245	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT24C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	5	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	5	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	235	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	240	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

GSOT36C

Rating	Test condition	Symbol	Value	Unit
Peak pulse current	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	3.5	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	I_{PPM}	3.5	A
Peak pulse power	Pin 1 to 3 or pin 2 to 3 Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	248	W
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected Acc. IEC 61000-4-5, t_P = 8/20 µs; single shot	P_{PP}	252	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
Operating temperature	Junction temperature	T_J	- 40 to + 125	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

BiAs-Mode (2-line Bidirectional Asymmetrical protection mode)

With the **GSOTxxC** two signal- or data-lines (L1, L2) can be protected against voltage transients. With pin 3 connected to ground and pin 1 and pin 2 connected to a signal- or data-line which has to be protected. As long as the voltage level on the data- or signal-line is between 0 V (ground level) and the specified **M**aximum **R**everse **W**orking **V**oltage (V_{RWM}) the protection diode between pin 2 and pin 3 and between pin 1 and pin 3 offer a high isolation to the ground line. The protection device behaves like an open switch.

As soon as any positive transient voltage signal exceeds the break through voltage level of the protection diode, the diode becomes conductive and shorts the transient current to ground. Now the protection device behaves like a closed switch. The **C**lamping **V**oltage (V_C) is defined by the **BR**eakthrough **V**oltage (V_{BR}) level plus the voltage drop at the series impedance (resistance and inductance) of the protection device.

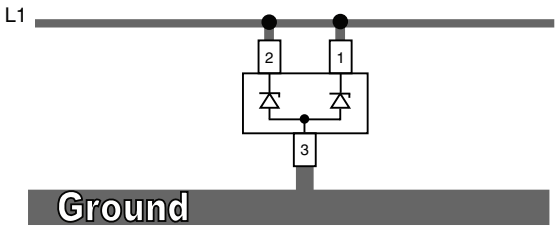
Any negative transient signal will be clamped accordingly. The negative transient current is flowing in the forward direction of the protection diode. The low **F**orward **V**oltage (V_F) clamps the negative transient close to the ground level.

Due to the different clamping levels in forward and reverse direction the **GSOTxxC** clamping behaviour is **Bi**directional and **As**ymmetrical (**BiAs**).

20358

If a higher surge current or **P**eak **P**ulse **current** (I_{PP}) is needed, both protection diodes in the **GSOTxxC** can also be used in parallel in order to "double" the performance.

This offers:
- double surge power = double peak pulse current (2 x I_{PPM})
- halve line inductance = reduced clamping voltage
- halve line resistance = reduced clamping voltage
- double **D**iode **C**apacitance (2 x C_D)
- double **R**everse leakage **current** (2 x I_R)



20359

Electrical Characteristics
Ratings at 25 °C, ambient temperature unless otherwise specified

GSOT03C
BiAs mode (between Pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 100 µA	V_{RWM}	3.3			V
Reverse current	at V_R = 3.3 V	I_R			100	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	4	4.6		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		5.7	7.5	V
	at I_{PP} = I_{PPM} = 30 A	V_C		10	12.3	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at I_{PP} = I_{PPM} = 30 A	V_F		4.5		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		420	600	pF
	at V_R = 1.6 V; f = 1 MHz	C_D		260		pF

GSOT04C
BiAs mode (between Pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 20 µA	V_{RWM}	4			V
Reverse current	at V_R = 4 V	I_R			20	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	5	6.1		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		7.5	9	V
	at I_{PP} = I_{PPM} = 30 A	V_C		11.2	14.3	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at I_{PP} = I_{PPM} = 30 A	V_F		4.5		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		310	450	pF
	at V_R = 2 V; f = 1 MHz	C_D		200		pF

GSOT05C
BiAs mode (between Pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 10 µA	V_{RWM}	5			V
Reverse current	at V_R = 5 V	I_R			10	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	6	6.8		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		7	8.7	V
	at I_{PP} = I_{PPM} = 30 A	V_C		12	16	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at I_{PP} = I_{PPM} = 30 A	V_F		4.5		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		260	350	pF
	at V_R = 2.5 V; f = 1 MHz	C_D		150		pF

GSOT08C

BiAs mode (between Pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 5 µA	V_{RWM}	8			V
Reverse current	at V_R = 8 V	I_R			5	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	9	10		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		10.7	13	V
	at $I_{PP} = I_{PPM}$ = 18 A	V_C		15.2	19.2	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at $I_{PP} = I_{PPM}$ = 18 A	V_F		3		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		160	250	pF
	at V_R = 4 V; f = 1 MHz	C_D		80		pF

GSOT12C

BiAs mode (between pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	12			V
Reverse current	at V_R = 12 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	13.5	15		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		15.4	18.7	V
	at $I_{PP} = I_{PPM}$ = 12 A	V_C		21.2	26	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at $I_{PP} = I_{PPM}$ = 12 A	V_F		2.2		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		115	150	pF
	at V_R = 6 V; f = 1 MHz	C_D		50		pF

GSOT15C

BiAs mode (between pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	15			V
Reverse current	at V_R = 15 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	16.5	18		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		19.4	23.5	V
	at $I_{PP} = I_{PPM}$ = 8 A	V_C		24.8	28.8	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at $I_{PP} = I_{PPM}$ = 8 A	V_F		1.8		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		90	120	pF
	at V_R = 7.5 V; f = 1 MHz	C_D		35		pF

GSOT24C

BiAs mode (between pin 1 to 3 or pin 2 to 3)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	24			V
Reverse current	at V_R = 24 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	27	30		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		34	41	V
	at $I_{PP} = I_{PPM}$ = 5 A	V_C		41	47	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at $I_{PP} = I_{PPM}$ = 5 A	V_F		1.4		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		65	80	pF
	at V_R = 12 V; f = 1 MHz	C_D		20		pF

GSOT36C

BiAs mode (between pin 1 to 3 or pin 2 to 3)

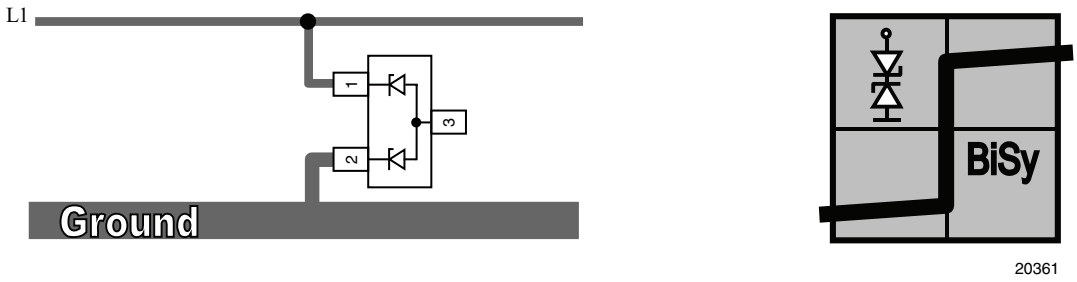
Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			2	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	36			V
Reverse current	at V_R = 36 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	39	43		V
Reverse clamping voltage	at I_{PP} = 1 A	V_C		49	60	V
	at $I_{PP} = I_{PPM}$ = 3.5 A	V_C		59	71	V
Forward clamping voltage	at I_{PP} = 1 A	V_F		1	1.2	V
	at $I_{PP} = I_{PPM}$ = 3.5 A	V_F		1.3		V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		52	65	pF
	at V_R = 18 V; f = 1 MHz	C_D		12		pF

BiSy-mode (1-line Bidirectional Symmetrical protection mode)

If a bipolar symmetrical protection device is needed the **GSOTxxC** can also be used as a single line protection device. Therefore pin 1 has to be connected to the signal- or data-line (L1) and pin 2 to ground (or vice versa). pin 3 must not be connected.

Positive and negative voltage transients will be clamped in the same way. The clamping current through the **GSOTxxC** passes one diode in forward direction and the other one in reverse direction. The **C**lamping **V**oltage ($\mathbf{V_C}$) is defined by the **BR**eakthrough **V**oltage ($\mathbf{V_{BR}}$) level of one diode plus the forward voltage of the other diode plus the voltage drop at the series impedances (resistances and inductances) of the protection device.

Due to the same clamping levels in positive and negative direction the **GSOTxxC** voltage clamping behaviour is **Bi**directional and **Sy**mmetrical (**BiSy**).



Electrical Characteristics

Ratings at 25 °C, ambient temperature unless otherwise specified

GSOT03C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 100 µA	V_{RWM}	3.8			V
Reverse current	at V_R = 3.8 V	I_R			100	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	4.5	5.3		V
Clamping voltage	at I_{PP} = 1 A	V_C		7	8.4	V
	at $I_{PP} = I_{PPM}$ = 30 A	V_C		14	16.8	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		210	300	pF
	at V_R = 1.6 V; f = 1 MHz	C_D		190		pF

GSOT04C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 20 µA	V_{RWM}	4.5			V
Reverse current	at V_R = 4.5 V	I_R			20	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	5.5	6.8		V
Clamping voltage	at I_{PP} = 1 A	V_C		7.5	9	V
	at $I_{PP} = I_{PPM}$ = 30 A	V_C		15.7	18.8	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		155	225	pF
	at V_R = 2 V; f = 1 MHz	C_D		135		pF

GSOT05C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 10 µA	V_{RWM}	5.5			V
Reverse current	at V_R = 5.5 V	I_R			10	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	6.5	7.5		V
Clamping voltage	at I_{PP} = 1 A	V_C		8.1	9.7	V
	at I_{PP} = I_{PPM} = 30 A	V_C		17	20.4	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		130	175	pF
	at V_R = 2.5 V; f = 1 MHz	C_D		100		pF

GSOT08C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 5 µA	V_{RWM}	8.5			V
Reverse current	at V_R = 8.5 V	I_R			5	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	9.5	10.7		V
Clamping voltage	at I_{PP} = 1 A	V_C		11.7	14	V
	at I_{PP} = I_{PPM} = 18 A	V_C		18.5	22.2	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		80	125	pF
	at V_R = 4 V; f = 1 MHz	C_D		60		pF

GSOT12C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	12.5			V
Reverse current	at V_R = 12.5 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	13.5	15.7		V
Clamping voltage	at I_{PP} = 1 A	V_C		16.4	19.7	V
	at I_{PP} = I_{PPM} = 12 A	V_C		23.4	28.1	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		58	75	pF
	at V_R = 6 V; f = 1 MHz	C_D		36		pF

GSOT15C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	15.5			V
Reverse current	at V_R = 15.5 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	17	18.7		V
Clamping voltage	at I_{PP} = 1 A	V_C		20.4	24.5	V
	at I_{PP} = I_{PPM} = 8 A	V_C		26.6	30.6	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		45	60	pF
	at V_R = 7.5 V; f = 1 MHz	C_D		25		pF

GSOT24C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

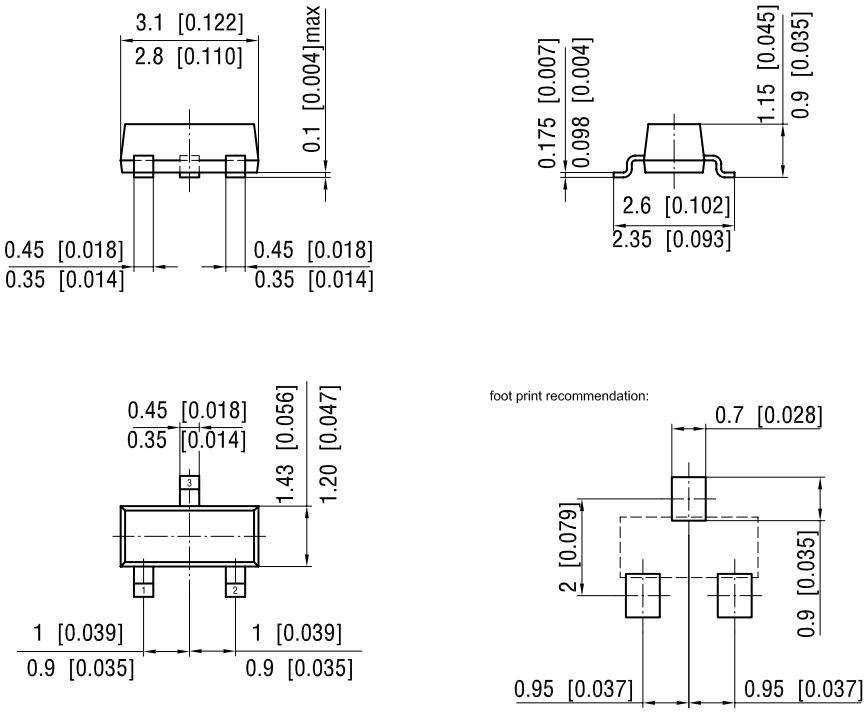
Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	24.5			V
Reverse current	at V_R = 24.5 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	27.5	30.7		V
Clamping voltage	at I_{PP} = 1 A	V_C		34	41	V
	at I_{PP} = I_{PPM} = 5 A	V_C		40	48	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		33	40	pF
	at V_R = 12 V; f = 1 MHz	C_D		18		pF

GSOT36C

BiSy mode (between pin 1 to 2 or pin 2 to 1; pin 3 not connected)

Parameter	Test conditions/remarks	Symbol	Min.	Typ.	Max.	Unit
Protection paths	Number of lines which can be protected	N_{lines}			1	lines
Reverse stand off voltage	at I_R = 1 µA	V_{RWM}	36.5			V
Reverse current	at V_R = 36.5 V	I_R			1	µA
Reverse break down voltage	at I_R = 1 mA	V_{BR}	39.5	43.7		V
Clamping voltage	at I_{PP} = 1 A	V_C		50	60	V
	at I_{PP} = I_{PPM} = 3.5 A	V_C		60	72	V
Capacitance	at V_R = 0 V; f = 1 MHz	C_D		26	33	pF
	at V_R = 18 V; f = 1 MHz	C_D		10		pF

Package Dimensions in millimeters (inches): **SOT23**



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Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively.
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA.
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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