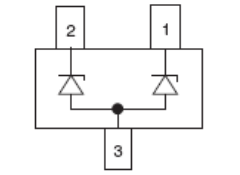
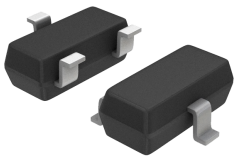
Two-Line ESD Protection GSOT03C-24C

FEATURES

- Two-line ESD-protection device
- ESD-protection acc. IEC 61000-4-2
  ± 30 kV contact discharge
  ± 30 kV air discharge
- AEC-Q101 qualified





SOT-23

APPLICATIONS

- Cell Phone Handsets and Accessories
- Microprocessor based equipment

ORDERING INFORMATION

Type No.	Marking	Package Code
GSOT03C	03C	SOT-23
GSOT05C	05C	SOT-23
GSOT12C	12C	SOT-23
GSOT24C	24C	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

GSOT03C				
Parameter	**Test Conditions**	**Symbol**	**Limits**	**Unit**
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 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, tp = 8/20 µs; single shot		504	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 8/20 µs; single shot	I_{PP}	30	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, tp = 8/20 µs; single shot		30	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{PP}	±30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	±30	kV
Operating temperature	Junction temperature	T_j	-55 to+150	℃
Storage temperature	/	T_{STG}	-55 to+150	℃

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GSOT05C				
Parameter	**Test Conditions**	**Symbol**	**Limits**	**Unit**
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 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, tp = 8/20 µs; single shot		612	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 8/20 µs; single shot	I_{PP}	30	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, tp = 8/20 µs; single shot		30	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{PP}	±30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	±30	kV
Operating temperature	Junction temperature	T_j	-55 to+150	℃
Storage temperature	/	T_{STG}	-55 to+150	℃

GSOT12C				
Parameter	**Test Conditions**	**Symbol**	**Limits**	**Unit**
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 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, tp = 8/20 µs; single shot		337	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 8/20 µs; single shot	I_{PP}	12	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, tp = 8/20 µs; single shot		12	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{PP}	±30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	±30	kV
Operating temperature	Junction temperature	T_j	-55 to+150	℃
Storage temperature	/	T_{STG}	-55 to+150	℃

Two-Line ESD Protection GSOT03C-24C

GSOT24C				
Parameter	**Test Conditions**	**Symbol**	**Limits**	**Unit**
Peak pulse power	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 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, tp = 8/20 µs; single shot		240	
Peak pulse current	Pin 1 to 3 or pin 2 to 3 acc. IEC 61000-4-5, tp = 8/20 µs; single shot	I_{PP}	5	A
	Pin 1 to 2 or pin 2 to 1; pin 3 not connected acc. IEC 61000-4-5, tp = 8/20 µs; single shot		5	
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{PP}	±30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	±30	kV
Operating temperature	Junction temperature	T_j	-55 to+150	℃
Storage temperature	/	T_{STG}	-55 to+150	℃

ELECTRICAL CHARACTERISTICS @ Ta=25 unless otherwise specified

GSOT03C **between pin 1 to pin 3 or pin 2 to pin 3**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			2	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			3.3	V	I_R=100uA
Reverse current	I_R			100	uA	V_R=3.3V
Reverse breakdown voltage	V_{BR}	4	4.6		V	I_R=1mA
Clamping voltage	V_C		5.7 10	7.5 12.3	V	I_{PP}=1A I_{PP}= I_{PPM}=30A
Forward clamping voltage	V_F		1 4.5	1.2	µA	I_{PP}=1A I_{PP}= I_{PPM}=30A
Junction Capacitance	C_D		420 260	600	pF	V_R=0V,f=1MHz V_R=1.6V,f=1MHz

Two-Line ESD Protection GSOT03C-24C

GSOT05C **between pin 1 to pin 3 or pin 2 to pin 3**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			2	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			5	V	I_R=100uA
Reverse current	I_R			10	uA	V_R=5V
Reverse breakdown voltage	V_{BR}	6	6.8		V	I_R=1mA
Clamping voltage	V_C		7 12	8.7 16	V	I_{PP}=1A I_{PP}= I_{PPM}=30A
Forward clamping voltage	V_F		1 4.5	1.2	μA	I_{PP}=1A I_{PP}= I_{PPM}=30A
Junction Capacitance	C_D		260 150	350	pF	V_R=0V,f=1MHz V_R=2.5V,f=1MHz

GSOT12C **between pin 1 to pin 3 or pin 2 to pin 3**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			2	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			12	V	I_R=1uA
Reverse current	I_R			1	uA	V_R=12V
Reverse breakdown voltage	V_{BR}	13.5	15		V	I_R=1mA
Clamping voltage	V_C		15.4 21.2	18.7 26	V	I_{PP}=1A I_{PP}= I_{PPM}=12A
Forward clamping voltage	V_F		1 2.2	1.2	μA	I_{PP}=1A I_{PP}= I_{PPM}=12A
Junction Capacitance	C_D		115 50	150	pF	V_R=0V,f=1MHz V_R=6V,f=1MHz

Two-Line ESD Protection GSOT03C-24C

GSOT24C **between pin 1 to pin 3 or pin 2 to pin 3**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			2	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			24	V	I_R=1uA
Reverse current	I_R			1	uA	V_R=24V
Reverse breakdown voltage	V_{BR}	27	30		V	I_R=1mA
Clamping voltage	V_C		34 41	41 47	V	I_{PP}=1A I_{PP}= I_{PPM}=5A
Forward clamping voltage	V_F		1 1.4	1.2	μA	I_{PP}=1A I_{PP}= I_{PPM}=5A
Junction Capacitance	C_D		65 20	80	pF	V_R=0V,f=1MHz V_R=12V,f=1MHz

GSOT03C **between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			1	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			3.8	V	I_R=100uA
Reverse current	I_R			100	uA	V_R=3.8V
Reverse breakdown voltage	V_{BR}	4.5	5.3		V	I_R=1mA
Clamping voltage	V_C		7 14	8.4 16.8	V	I_{PP}=1A I_{PP}= I_{PPM}=30A
Junction Capacitance	C_D		210 190	300	pF	V_R=0V,f=1MHz V_R=1.6V,f=1MHz

Two-Line ESD Protection GSOT03C-24C

GSOT05C **between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			1	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			5.5	V	I_R=10uA
Reverse current	I_R			10	uA	V_R=5.5V
Reverse breakdown voltage	V_{BR}	6.5	7.5		V	I_R=1mA
Clamping voltage	V_C		8.1 17	9.7 20.4	V	I_{PP}=1A I_{PP}= I_{PPM}=18A
Junction Capacitance	C_D		130 100	175	pF	V_R=0V,f=1MHz V_R=4V,f=1MHz

GSOT12C **between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected**						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			1	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			12.5	V	I_R=1uA
Reverse current	I_R			1	uA	V_R=12.5V
Reverse breakdown voltage	V_{BR}	13.5	15.7		V	I_R=1mA
Clamping voltage	V_C		16.4 23.4	19.7 28.1	V	I_{PP}=1A I_{PP}= I_{PPM}=12A
Junction Capacitance	C_D		58 36	75	pF	V_R=0V,f=1MHz V_R=7.5V,f=1MHz

Two-Line ESD Protection GSOT03C-24C

GSOT24C between pin 1 to pin 2 or pin 2 to pin1; pin 3 not connected						
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditions**
Protection paths	$N_{channel}$			1	lines	Number of lines which can be protected
Reverse stand-off voltage	V_{RWM}			24.5	V	I_R=1uA
Reverse current	I_R			1	uA	V_R=24.5V
Reverse breakdown voltage	V_{BR}	27.5	30.7		V	I_R=1mA
Clamping voltage	V_C		34 40	41 48	V	I_{PP}=1A I_{PP}= I_{PPM}=5A
Junction Capacitance	C_D		33 18	40	pF	V_R=0V,f=1MHz V_R=12V,f=1MHz

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

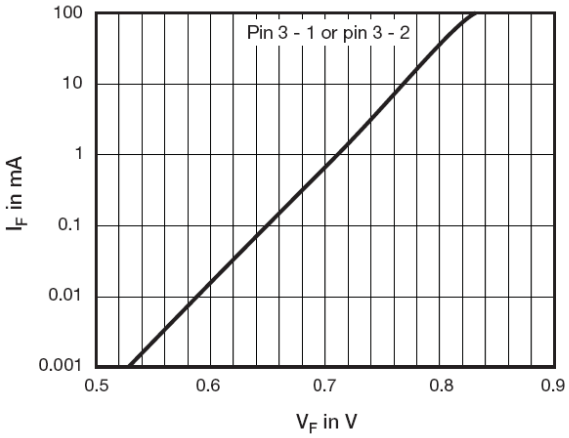

Fig. 1 - Typical Forward Current I_F vs. Forward Voltage V_F

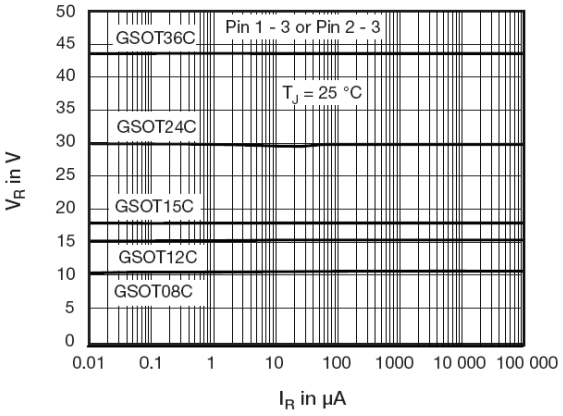

Fig. 2 - Typical Reverse Voltage V_R vs. Reverse Current I_R

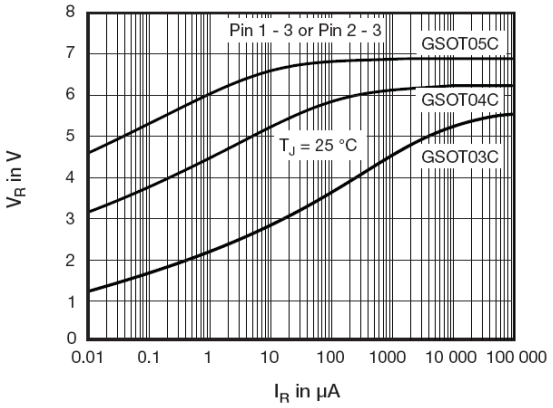

Fig. 3 - Typical Reverse Voltage V_R vs. Reverse Current I_R

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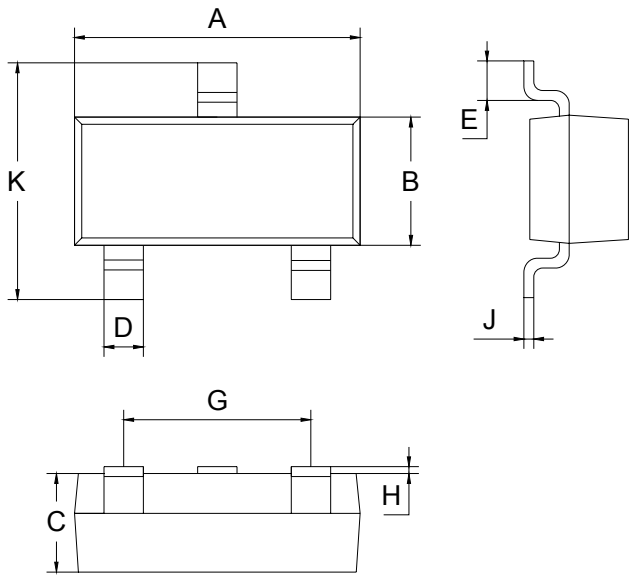
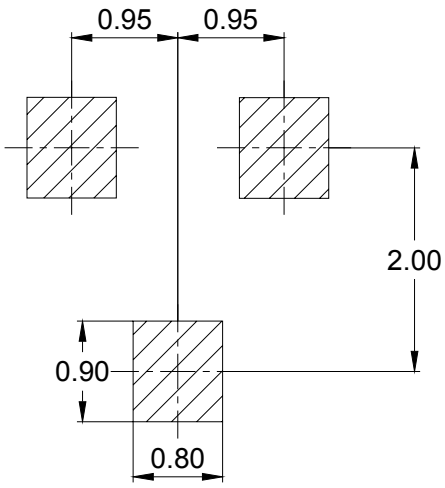
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
GSOT03C-24C	SOT-23	3000/Tape&Reel