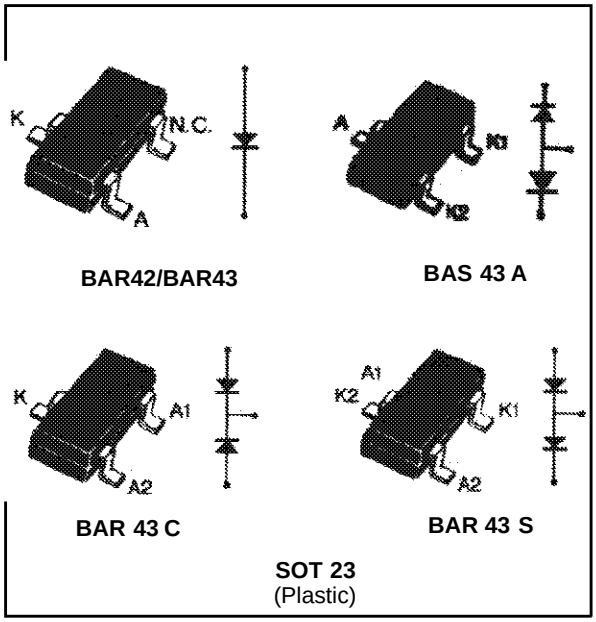
SGS-THOMSON MICROELECTRONICS

BAR 42
BAR 43, A, C, S

SMALL SIGNAL SCHOTTKY DIODES



SOT 23
(Plastic)

DESCRIPTION

General purpose metal to silicon diodes featuring very low turn-on voltage and fast switching.

ABSOLUTE RATINGS (limiting values) (T_{amb} = 25°C) (see note 1)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	30	V
I_F	Forward Current	100	mA
I_{FRM}	Repetitive Peak Fordware Current	350	mA
I_{FSM}	Surge non Repetitive Forward Current	750	A
P_{tot}	Power Dissipation* (see note 2)	160	mW
T_{stg} T_j	Storage and Junction Temperature Range	- 55 to + 150 - 55 to + 125	°C °C

THERMAL RESISTANCE (see note 3)

Symbol	Test Conditions	Value	Unit
$R_{th(j-a)}$	Junction-ambient*	625	°C/W
$R_{th(j-SR)}$	Junction-substrate	400	°C/W

* Mounted on ceramic substrate: 7 x 5 x 0.5mm.

Notes: 1 For double diodes maximum ratings apply to each diode, provided that rated Ptot is not exceeded.
2 For double diodes Ptot is the total power dissipation of the two diodes.
3 For double diodes, Rth refer to the total power dissipation in the two diodes and is given independently of the power distribution in the two diodes.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
V_{BR}	Tamb = 25°C	I_R = 100µA		30			V
V_F	T_{amb} = 25°C	BAT 42	I_F = 10 mA		0.35	0.4	V
			I_F = 50 mA		0.5	0.65	
		BAT 43	I_F = 2 mA	0.26		0.33	
			I_F = 15 mA			0.45	
		All	I_F = 100 mA			1	
I_R	T_{amb} = 25°C	V_R = 25V				500	nA
	T_{amb} = 100°C					100	µA

DYNAMIC CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
C	T_{amb} = 25°C	V_R = 1V	f = 1MHz		7		pF
trr	T_{amb} = 25°C I_{rr} = 1mA	I_F = 10 mA R_L = 100 Ω	I_R = 10 mA			5	ns
η*	T_{amb} = 25°C F = 45Mhz	R_L = 50 KΩ V_i = 2V	C_L = 300 pF for BAR 43	80			%

* Detection efficiency.

Figure 1. Forward current versus forward voltage at different temperatures (typical values).

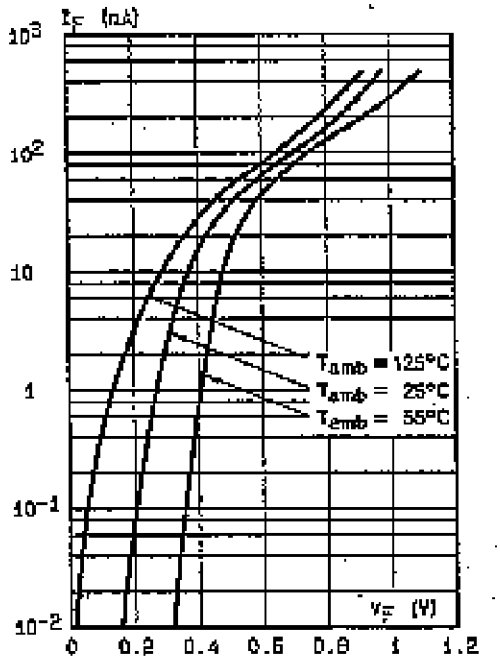


Figure 2. Forward current versus forward voltage (typical values).

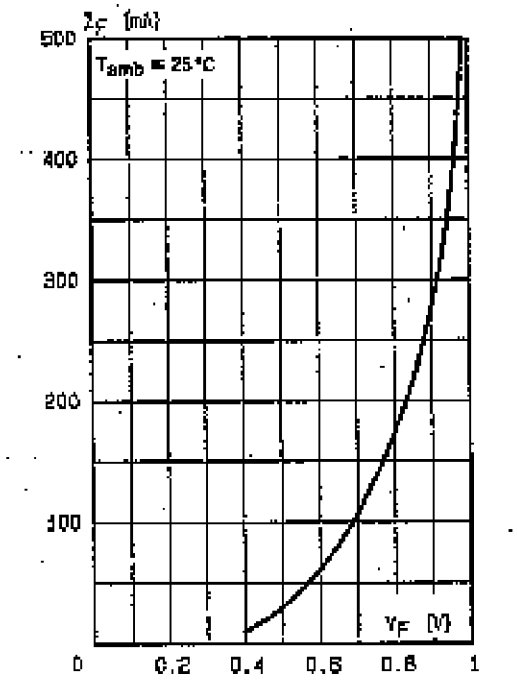


Figure 3. Reverse current versus junction temperature (typical values).

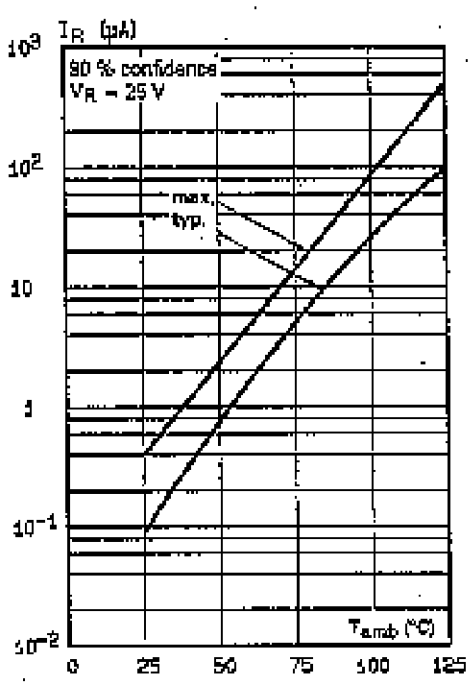


Figure 4. Reverse current versus continuous reverse voltage.

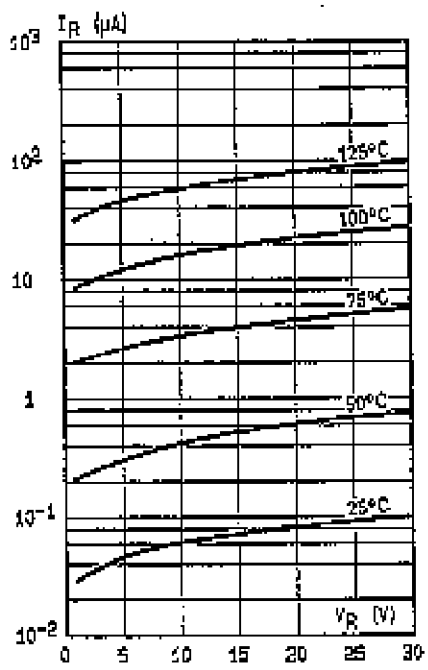
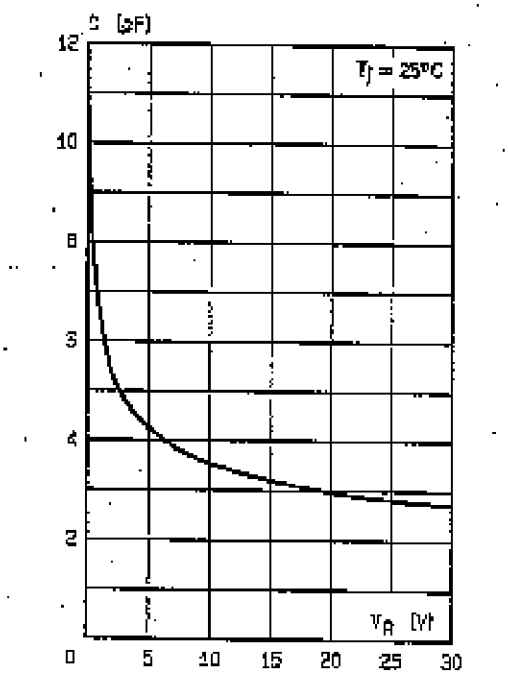
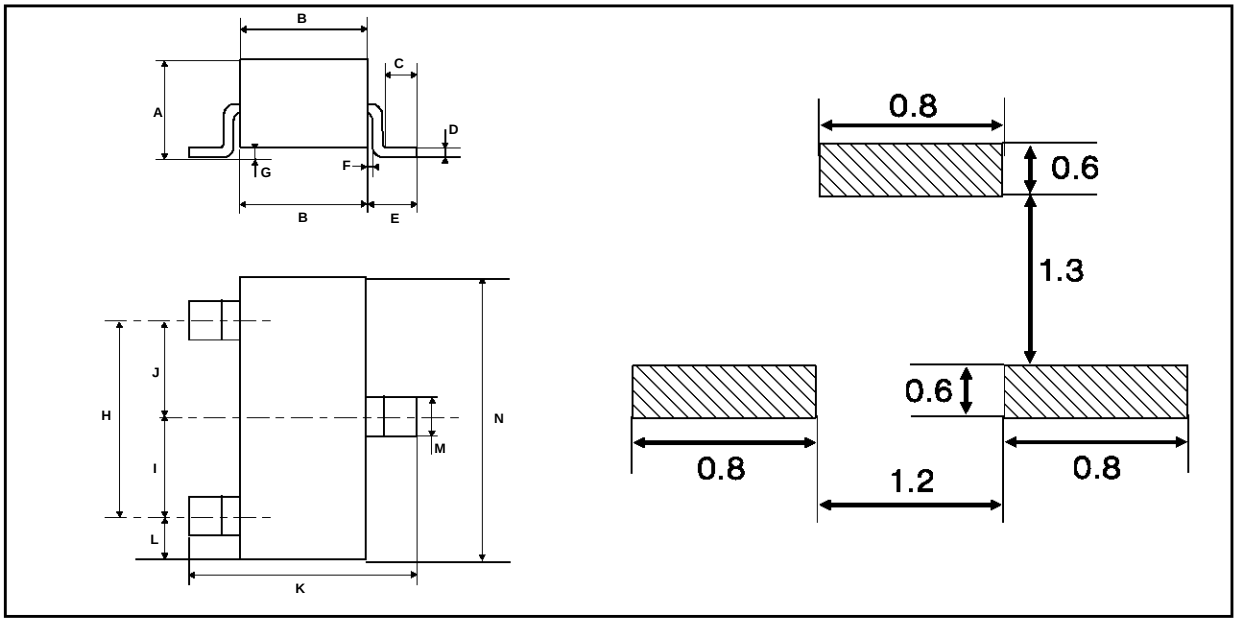


Figure 5. Capacitance C versus reverse applied voltage V_R (typical values).



PACKAGE MECHANICAL DATA

SOT 23 (Plastic)



FOOT PRINT DIMENSIONS (Millimeter)

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.93	1.04	0.036	0.041
B	1.20	1.40	0.047	0.055
C	0.15		0.006	
D	0.085	0.115	0.003	0.005
E	0.45	0.60	0.018	0.024
F	0.08		0.003	
G	0.013	0.10	0.0005	0.004
H	1.90	2.05	0.075	0.081
I	0.95	1.05	0.037	0.041
J	0.95	1.05	0.037	0.041
K	2.10	2.50	0.083	0.098
L	0.45	0.60	0.018	0.024
M	0.37	0.46	0.015	0.018
N	2.80	3.00	0.110	0.118

Type	BAR 42	BAR 43	BAR 43A	BAR 43C	BAR 43S
Marking	D94	D95	DB1	DB2	DA5