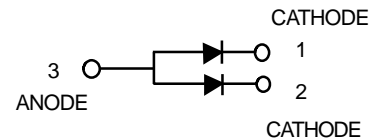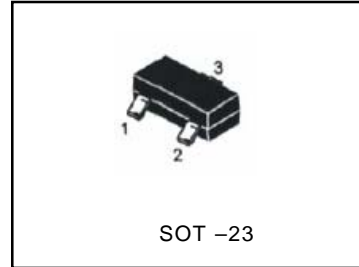# WILLAS

Ultra High Speed Switching

Application Pb Free Product

1SS181

- Low forward voltage : $V_{F(3)}$ = 0.92V (typ.)
- Fast reverse recovery time : t_{rr} = 1.6ns (typ.)
- Small total capacitance : C_T = 2.2pF (typ.)
- We declare that the material of product compliance with RoHS requirements.

SOT −23

CATHODE

3 ANODE — 1 CATHODE

— 2 CATHODE

Driver Marking

1SS181 = A3

Maximum Ratings (T_A = 25°C)

Characteristic	Symbol	Rating	Unit
Maximum (peak) reverse voltage	V_{RM}	85	V
Reverse voltage	V_R	80	V
Maximum (peak) forward current	I_{FM}	300 *	mA
Average forward current	I_O	100 *	mA
Surge current (10ms)	I_{FSM}	2 *	A
Power dissipation	P	150	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55~+125	°C

* : Unit rating. Total rating = Unit rating × 1.5.

Electrical Characteristics (T_A = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F(1)}$	–	I_F = 1mA	–	0.61	–	V
	$V_{F(2)}$	–	I_F = 10mA	–	0.74	–	
	$V_{F(3)}$	–	I_F = 100mA	–	0.90	1.20	
Reverse current	$I_{R(1)}$	–	V_R = 30V	–	–	0.1	μA
	$I_{R(2)}$	–	V_R = 80V	–	–	0.5	
Total capacitance	C_T	–	V_R = 0, f = 1MHz	–	2.2	4.0	pF
Reverse recovery time	t_{rr}	–	I_F = 10mA (Fig.5)	–	1.6	4.0	ns

—WILLAS

Electrical characteristic curves
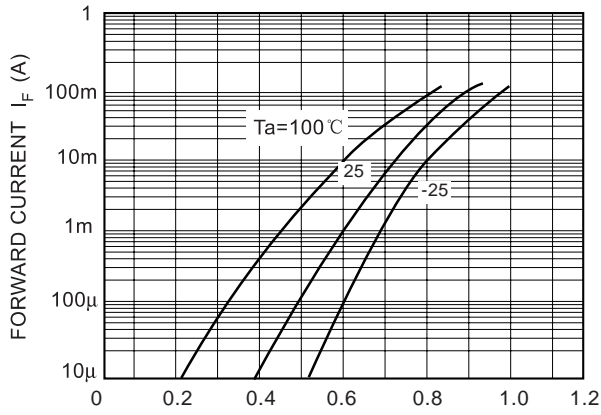
Fig.1 FORWARD VOLTAGE V_F(V)
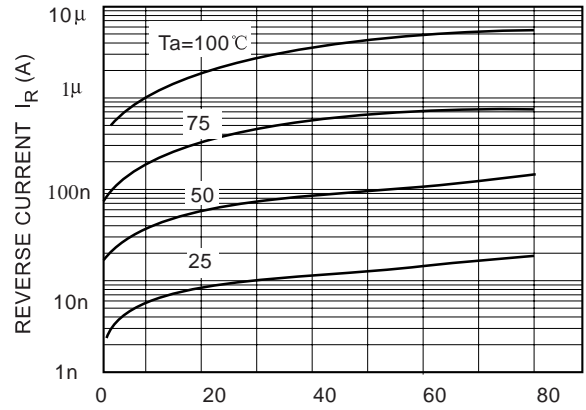
FORWARD CURRENT I_F (A)

Ta=100℃
25
-25

Fig.2 REVERSE VOLTAGE V_R(V)

REVERSE CURRENT I_R (A)

Ta=100℃
75
50
25

Fig.3 REVERSE VOLTAGE V_R(V)

TOTAL CAPACITANCE C_T (pF)

f=1MHz
Ta=25℃

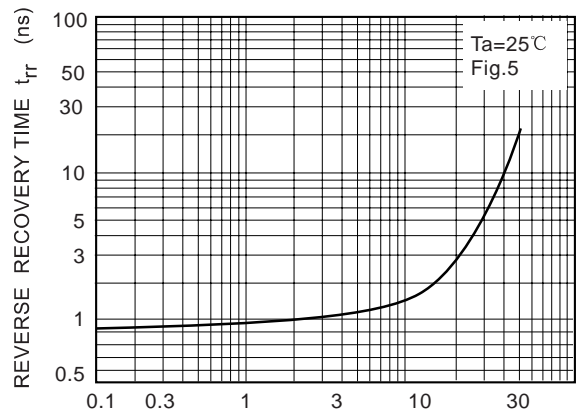**Fig.4 FORWARD CURRENT I_F(mA)**

REVERSE RECOVERY TIME t_{rr} (ns)

Ta=25℃
Fig.5

0.01μF DUT

INPUT

0

-6V

50ns

PULSE GENERATOR
(R_{OUT}=50Ω)

50Ω   2KΩ   50Ω

E

OUTPUT

OSCILLOSCOPE
(R_{IN}=50Ω)

OUTPUT   WAVEFORM

IF=10mA

0

I_R

$0.1I_R$

t_{rr}
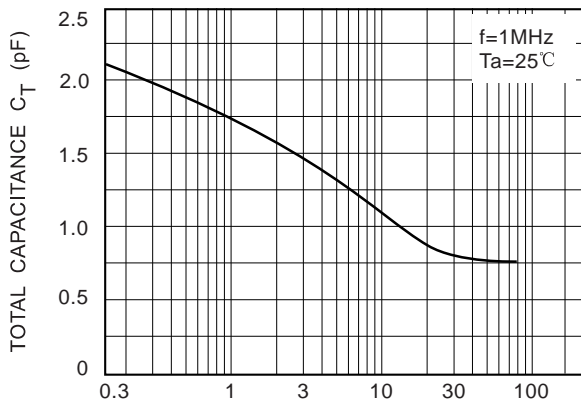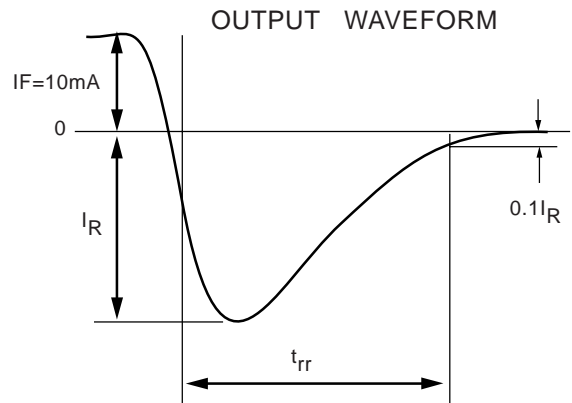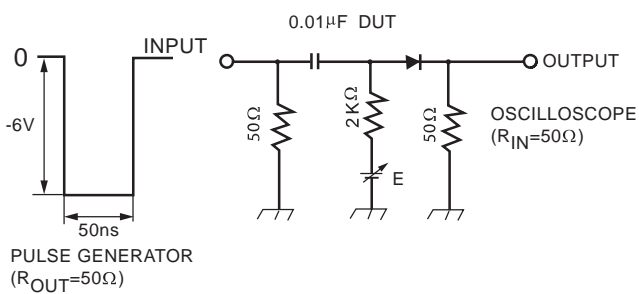
Fig.5 Reverse recovery time (t_{rr}) test circuit

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1SS181

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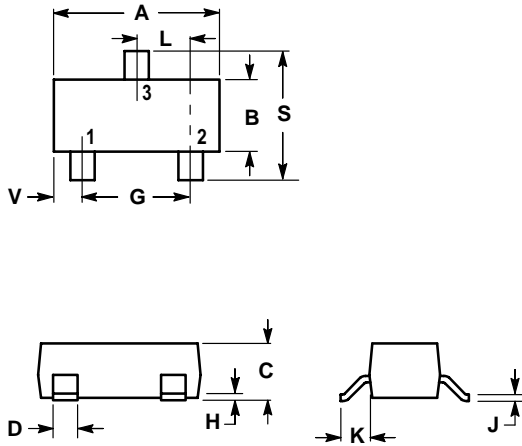
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	**MAX**	**MIN**	**MAX**
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

PIN 1. BASE
    2. EMITTER
    3. COLLECTOR

$\dfrac{0.037}{0.95}$

$\dfrac{0.037}{0.95}$

$\dfrac{0.079}{2.0}$

$\dfrac{0.035}{0.9}$

$\dfrac{0.031}{0.8}$

$\left(\dfrac{\text{inches}}{\text{mm}}\right)$