

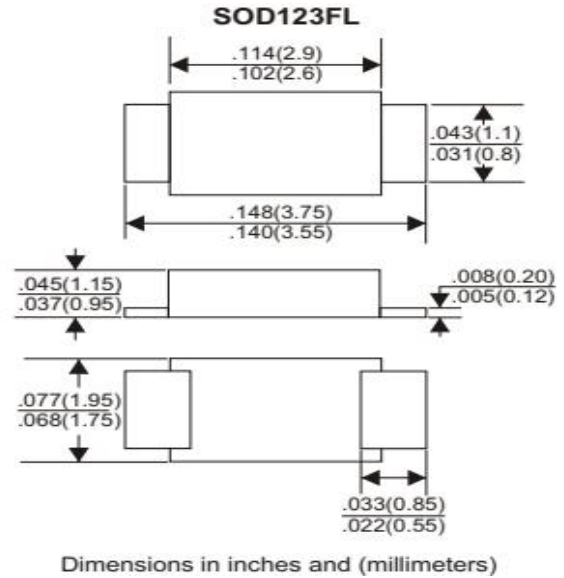
SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	0.5 A
V_{RRM}	40 / 60V
$V_F (max)$	0.40 / 0.50V

FEATURES AND BENEFITS

- Very small conduction losses
- Negligible switching losses
- Extremely fast switching



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value		Unit
				STPS		
				0540Z	0560Z	
V _{RRM}	Repetitive peak reverse voltage			40	60	V
I _{F(RMS)}	RMS forward current			2		A
I _{F(AV)}	Average forward current δ=0.5	STPS0540Z STPS0560Z	Ta= 60°C Ta= 40°C	0.5		A
I _{FSM}	Surge non repetitive forward current		tp=10ms sinusoidal	5.5		A
dV/dt	Critical rate of rise of reverse voltage			10000		V/μs
T _{stg}	Storage temperature range			- 65 to + 150		°C
T _j	Maximum operating junction temperature *			150		°C
TL	Maximum temperature for soldering during 10s			260		°C

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th}(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient (*)	340	°C/W

(*) Mounted on epoxy board.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Value				Unit
				STPS0540Z		STPS0560Z		
				typ.	max.	typ.	max.	
I _R *	Reverse leakage current	T _j =25°C	V _R = V _{RRM}		40		50	μA
		T =100°C		1.5	5	1	4	mA
V _F **	Forward voltage drop	T _j =25°C	I _F = 0.5 A		0.50		0.53	V
		T _j =100°C		0.35	0.40	0.44	0.50	
		T _j =25°C	I _F = 1 A		0.55		0.66	
		T _j =100°C		0.45	0.51	0.58	0.65	

Pulse test : * $t_p = 5 ms$, $\delta < 2\%$

** $t_p = 380 \mu s$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :

STPS0540Z: $P = 0.29 \times I_{F(AV)} + 0.22 \times I_F^2 (RMS)$

STPS0560Z: $P = 0.35 \times I_{F(AV)} + 0.3 \times I_F^2 (RMS)$

Fig. 1-1: Average forward power dissipation versus average forward current.(STPS0540Z)

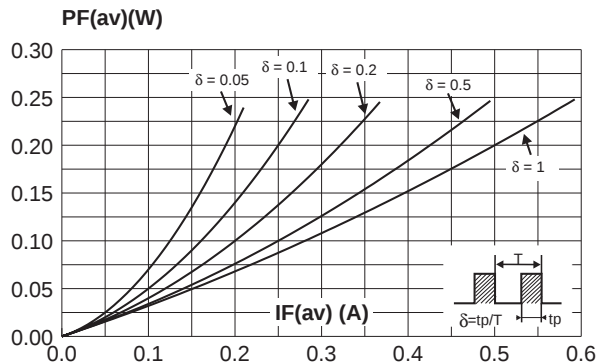


Fig. 1-2: Average forward power dissipation versus average forward current.(STPS0560Z)

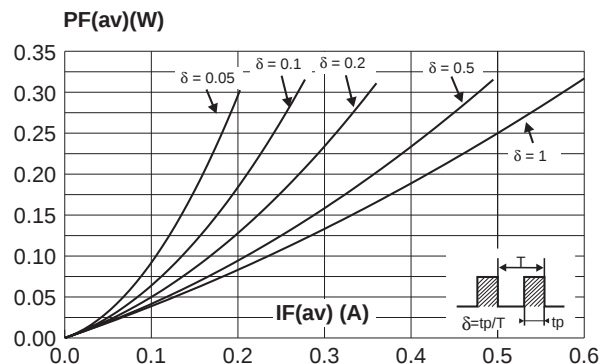


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

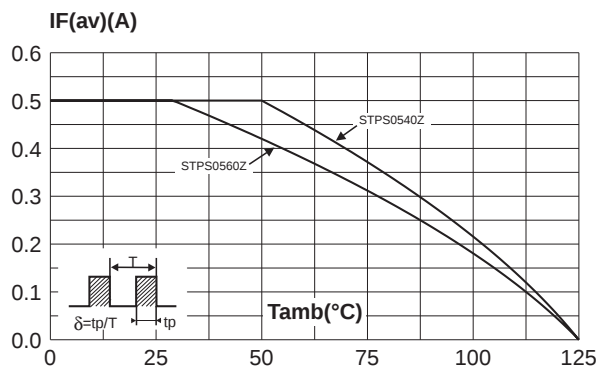


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

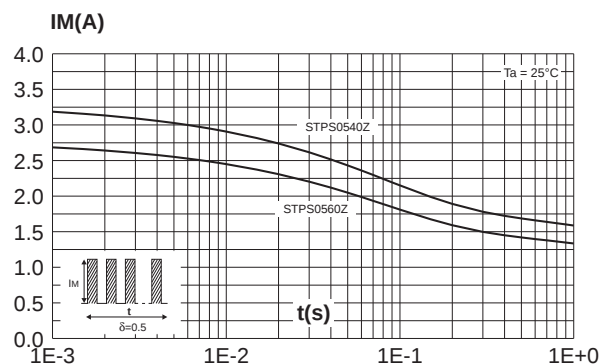


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration (Epoxy printed circuit board FR4 with recommended pad layout).

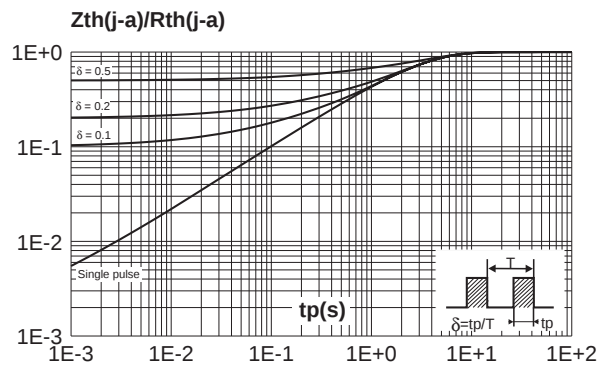


Fig. 5-1: Reverse leakage current versus reverse voltage applied (typical values).(STPS0540Z)

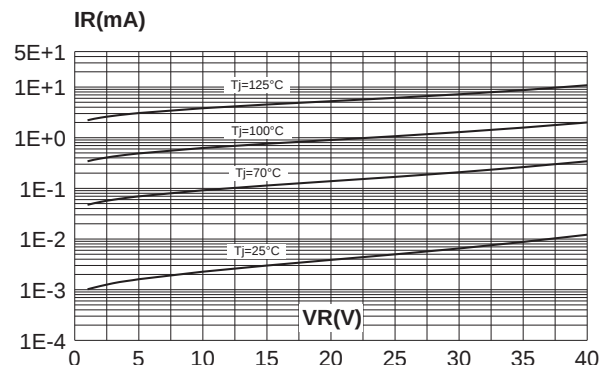


Fig. 5-2: Reverse leakage current versus reverse voltage applied (typical values).(STPS0560Z)

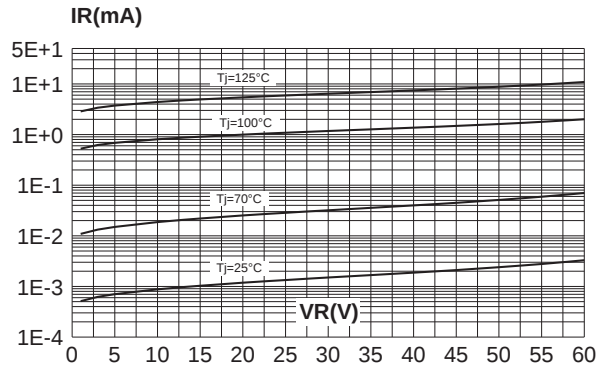


Fig. 6: Reverse leakage current versus junction temperature (typical values).

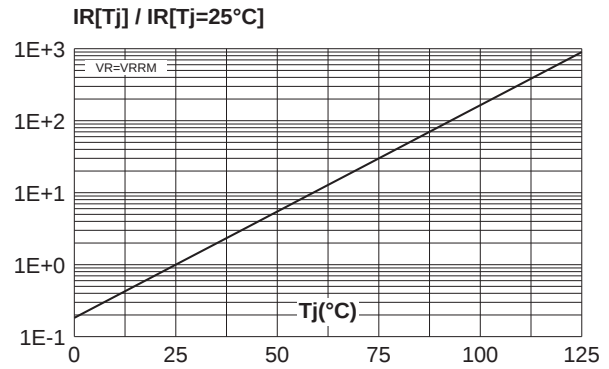


Fig. 7: Junction capacitance versus reverse voltage applied (typical values).

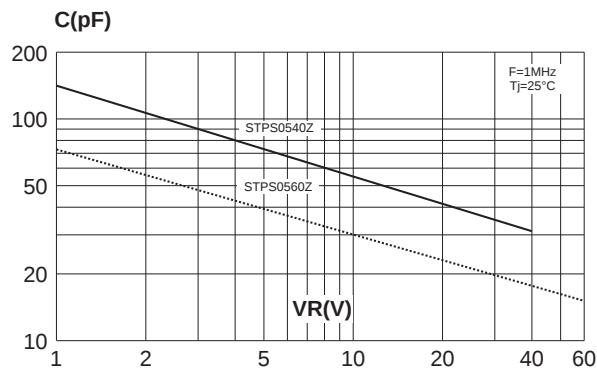


Fig. 8-1: Forward voltage drop versus forward current (maximum values).(STPS0540Z)

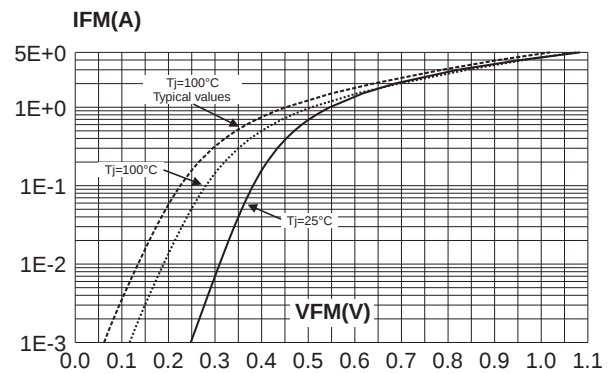


Fig. 8-2: Forward voltage drop versus forward current (maximum values).(STPS0560Z)

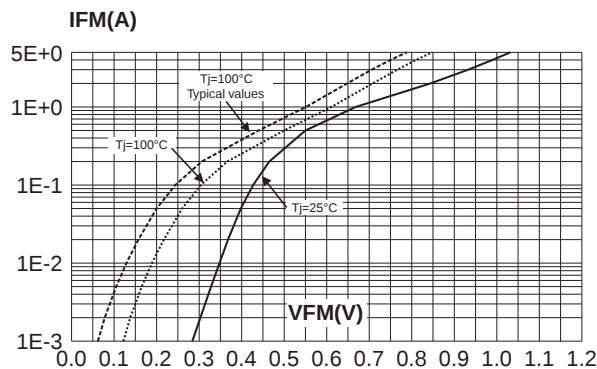
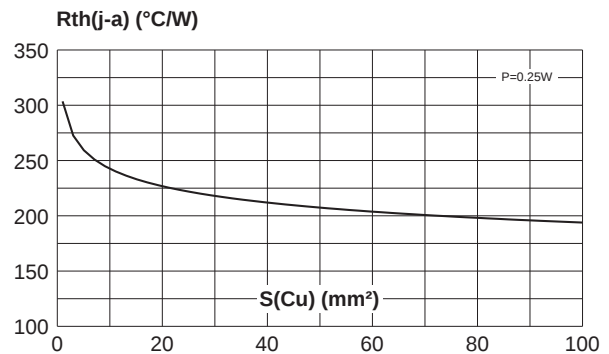


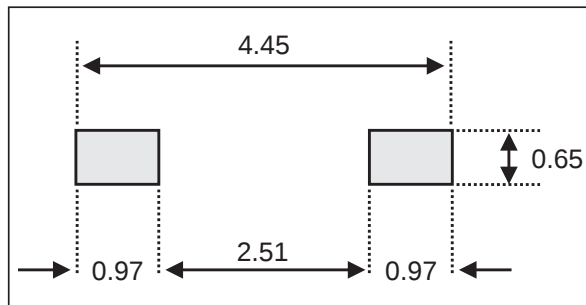
Fig. 9: Variation of thermal resistance junction to ambient versus copper surface under each lead (Printed circuit board FR4, $e(\text{Cu}) = 35\mu\text{m}$).



PACKAGE MECHANICAL DATA **SOD-123**

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		1.45		0.057
A1	0	0.1	0	0.004
A2	0.85	1.35	0.033	0.053
b	0.55 Typ.		0.022 Typ.	
c	0.15 Typ.		0.039 Typ.	
D	2.55	2.85	0.1	0.112
E	1.4	1.7	0.055	0.067
G	0.25		0.01	
H	3.55	3.95	0.14	0.156

FOOTPRINT (in millimeters)



MARKING

Type	Marking	Package	Weight	Base qty	Delivery mode
STPS0540Z	K14	SOD-123	0.01 g	3000	Tape & reel
STPS0560Z	K16	SOD-123	0.01 g	3000	Tape & reel

- Epoxy meets UL94, V0.
- Band indicates cathode.