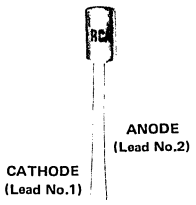
RCA
Solid State
Division

Rectifiers

D1300 Series



"Modified TO-1"

H-1026

0.25-A, 100-to-400-V Silicon Rectifiers

General-Purpose Types for Low-Power Applications

Features:

- **Hermetically sealed metal case, leads insulated from case — modified TO-1**
- **Operation at ambient temperatures to 125°C**
- **Single-ended for ease of handling and installation**

Package \ Voltage	100 V	200 V	400 V
"Modified TO-1"	D1300A	D1300B	D1300D

RCA D1300-series devices are diffused-junction silicon rectifiers in a hermetically sealed ("modified TO-1") 2-lead case. These devices differ from each other in their voltage ratings.

The D1300-series types are intended for use in amplifiers as compensating diodes (temperature and voltage), low-current bridge circuits, and other low-power service in industrial, consumer-product, and military applications.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

		D1300A	D1300B	D1300D	
REVERSE VOLTAGE:					
Repetitive Peak♦	V_{RRM}	100	200	400	V
Non-Repetitive Peak◆	V_{RSM}	150	300	525	V
Working Peak▲	V_{RWM}	100	200	400	V
DC Blocking	V_R	100	200	400	V
RMS	$V_{R(RMS)}$	70	140	280	V
FORWARD CURRENT:					
Average Rectified (T_A = 65°C):	I_o				
Single-phase, half-wave operation with 60-Hz sinusoidal voltage and resistive load			0.25		A
For other temperatures			See Fig. 1		
Peak Surge (Non-Repetitive) (T_A = 125°C):	I_{FSM}				
For one-half cycle of applied voltage, 50 Hz (10 ms)			28		A
60 Hz (8.3 ms)			30		A
400 Hz (1.25 ms)			60		A
For other durations			See Fig. 2		
TEMPERATURE RANGE:					
Storage	T_{stg}		−65 to 175		°C
Operating	$T_{oper.}$		−65 to 125		°C
LEAD TEMPERATURE (During Soldering):					
Measured 3/8 in. (9.52 mm) from case for 10 s max.	T_L		255		°C

♦ For single-phase, half-wave sinusoidal pulse of 100-μs duration and a repetition rate of 60 pulses per second.

◆ For one single-phase, half wave, 60-Hz sinusoidal pulse with this peak value.

▲ Maximum input voltage that can be continuously applied (with the maximum current rating) over the normal operating temperature range. For single-phase half-wave operation with a 60-Hz sinusoidal supply and a resistive load.

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	LIMITS All Types Min.	Typ.	Max.	UNITS
Reverse Current:					
Static					
For V_R = rated value & T_J = 25°C	I_R	–	–	0.01	mA
For V_R = rated value & T_J = 125°C		–	–	0.1	
Dynamic					
Full-cycle average, for V_{RWM} = rated value, I_o = 0.25 A, T_A = 65°C	$I_{R(AV)}$	–	–	0.06	mA
Instantaneous Forward-Voltage Drop:					
At i_F = 0.25 A, T_A = 25°C (See Fig.4)	v_F	–	0.88	1	V
Reverse-Recovery Time:					
At I_{FSM} = 20 mA, I_{RM} = 2 mA, T_A = 25°C	t_{rr}	–	30	–	μs
For other conditions			See Fig. 3		
Thermal Impedance (Junction-to-Air):					
Steady-State	$\theta_{J\text{-}A}$	–	–	250	°C/W

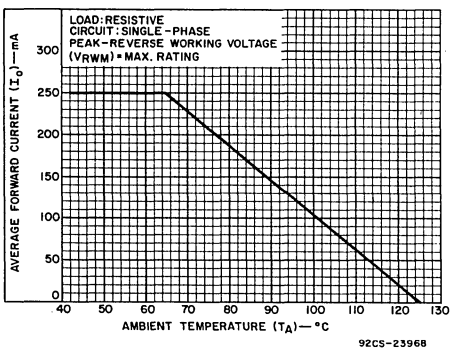


Fig.1 – Average-forward-current derating curve.

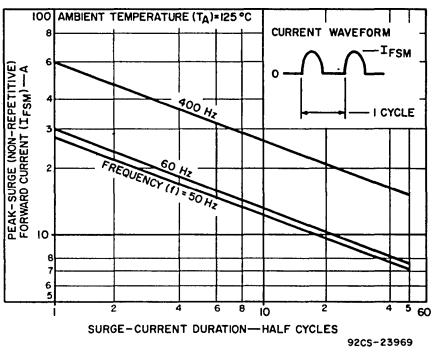


Fig.2 – Peak-surge (non-repetitive) forward current vs. surge-current duration.

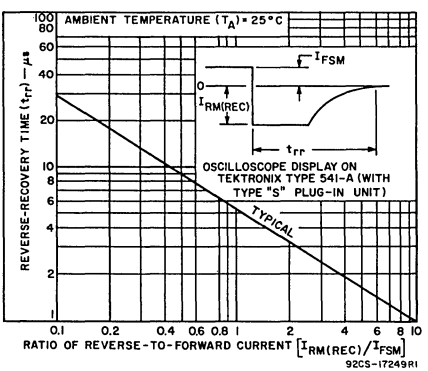


Fig.3 – Typical reverse-recovery time vs. ratio of reverse-to-forward current.

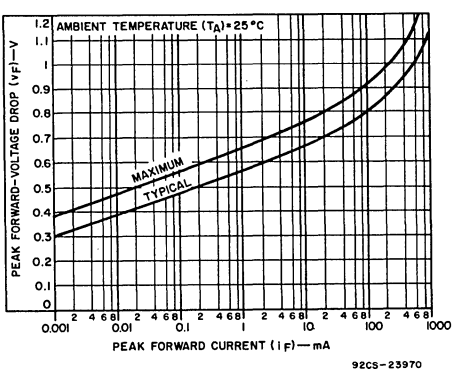


Fig.4 – Peak forward voltage drop vs. peak forward current.