RB/I Solid State Division

Rectifiers

D2520 Series D2520-R Series



20-A, 50-to-600-V, Fast-Recovery Silicon Rectifiers

General-Purpose Types for High-Current Applications

Available in reverse-polarity versions: D2520A-R, D2520B-R, D2520C-R, D2520D-R, D2520F-R, D2520M-R

Voltage	50 V	100 V	200 V	300 V	400 V	600 V
Package	Types	Types	Types	Types	Types	Types
DO-5	D2520F (43899)	D2520A (43900)	D2520B (43901)	D2520C (43902)	D2520D (43903)	D2520M (43904)

Numbers in parentheses are former RCA type numbers.

RCA D2520 series and D2520-R series are diffused-junction silicon rectifiers in a stud-type hermetic package. These devices differ only in their voltage ratings.

All types feature fast reverse-recovery time, with "soft" recovery characteristics that reduce the generation of RFI and voltage transients.

These devices are intended for use in high-speed inverters, choppers, high-frequency rectifiers, "free-wheeling" diode circuits, and other high-frequency applications.

MAXIMUM RATINGS, Absolute-Maximum Values:

Features:

D2520A

- Fast reverse-recovery time (t_{rr}) -
 - 0.35 μs max. (I_{FRM} = 63 A peak, see test circuit Fig. 1)
 - 0.2 μ s max. (I_{RM} = 1 A, I_{RM} = 2 A max., see test circuit Fig. 2)
- Low reverse-recovery current

D25200

- Low forward-voltage drop
- Low-thermal-resistance hermetic package

D2520D

D2520M

		DESECT	DEGEOR	020200	DEDEOO	DEDEUD	DIGION	
		D2520F-R	D2520A-R	D2520B-R	D2520C-R	D2520D-R	D2520M-R	
REVERSE VOLTAGE:								
Repetitive peak	VRRM	50	100	200	300	400	600	v
Non-repetitive peak	VRSM	100	200	300	400	600	800	v
FORWARD CURRENT (Conduction angle = 180 ⁰ ,								
half sine wave):								
RMS (T _C = 100°C)●	IF(RM	s) —			30			Α
Average (T _C = 100°C)	1 ₀	_			20			Α
Peak-surge (non-repetitive):	^I FSM							
At junction temperature (T _J) = 150 ⁰ C:								
For one-half cycle of applied voltage, 60 Hz (8.3 ms)					300			Α
For other durations				Se	e Fig.3			
Peak (repetitive)	FRM				100			Α
STORAGE-TEMPERATURE RANGE) to 165			°C
OPERATING (JUNCTION) TEMPERATURE					150			°C
STUD TORQUE:								
Recommended					30		ir	n-lb
Maximum (DO NOT EXCEED)					50		ir	n-lb

D25205

• Case temperature is measured at center of any flat surface on the hexagonal head of the mounting stud.



OSCILLOSCOPE DISPLAY OF REVERSE-RECOVERY TIME





Fig.2 - Test circuit (pulsed dc) for measurement of reverse-recovery time.

ELECTRICAL CHARACTERISTICS

		LIMITS		UNITS
CHARACTERISTIC	SYMBOL	ALL		
		MIN.	MAX.	
Reverse Current:		!		
Static				
For V _{RRM} = max.rated value, I _F = 0, T _C = 25 ^o C · · · · · ·	IRM	-	0.05	μΑ
T _C = 100 ^o C · · · · ·		-	6	mA
Instantaneous Forward Voltage Drop:				
At i _F = 20 A, T _J = 25 ^o C	٧F	-	1.4	v
Reverse Recovery Time:				
For circuit shown in Fig. 1, at				
IFM = 63 A, -diF/dt = 25 A/µs,				
pulse duration = 7.5 μ s, T _C = 25 ^o C	trr	-	0.35	μs
For circuit shown in Fig. 2, at				
IFM = 1 A, I _{RM} = 2 A max., T _C = 25 ^o C.		-	0.2	
Thermal Resistance (Junction-to-Case)	^R θJC	-	1	°C/W



Fig.3 – Peak surge (non-repetitive) forward current vs. surge-current duration.



as a function of peak current and duty factor for units with typical forward voltage drop.



Fig.4 – Forward current vs. forward voltage drop.



as a function of peak current and duty factor for units with maximum forward voltage drop.

