File Number **2178**

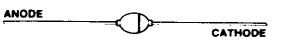
A14A, A14C, A14E, A14F, A14P

1-A, Glass-Passivated Junction Silicon Rectifiers

Features:

- *High temperature metallurgically bonded, no compression contacts as found in diode-constructed rectifiers*
- *Glass passivated junction*
- *1A operation at $T_A = 100°C$ with no thermal runaway*
- *Low reverse current*
- *Exceeds environmental standard of MIL-STD-19500*
- *Hermetically sealed package*
- *High temperature soldering: 350°C/10 s/0.375 in. (9.5mm) lead length*

TERMINAL DESIGNATIONS



DO-204AP

92CS-43475

The GE/RCA A14A, A14C, A14E, A14F, and A14P are glass-passivated "transient voltage protected," silicon rectifiers intended for general-purpose applications.

These rectifiers will dissipate up to 1000 watts in reverse direction without damage. Voltage transients generated by household or industrial power lines are dissipated.

These rectifiers are supplied in a JEDEC DO-204AP package.

4

MAXIMUM RATINGS, *Absolute-Maximum Values; Supply Frequency of 60Hz, resistive or inductive loads:*

	A14F	A14A	A14C	A14E	A14P	
MAXIMUM PEAK (REPETITIVE) REVERSE VOLTAGE, ... V_{RRM}	50	100	300	500	1000	V
MAXIMUM RMS (SUPPLY) VOLTAGE:						
For resistive or inductive loads, ... V_{RMS}	35	70	210	350	700	V
MAXIMUM DC REVERSE (BLOCKING) VOLTAGE, ... $V_{R(DC)}$	50	100	300	500	1000	V
MAXIMUM AVERAGE FORWARD OUTPUT CURRENT:						
For resistive or inductive loads, T_A = 100°C ..... I_O	1					A
MAXIMUM PEAK SURGE (NON-REPETITIVE) FORWARD CURRENT:						
For 8.3 ms half sine wave, superimposed on rated load, ... I_{FSM}	50					A
OPERATING JUNCTION AND STORAGE TEMPERATURE, ... $T_{j,\ Tstg}$	-65 to +175					°C

A14A, A14C, A14E, A14F, A14P

ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS		LIMITS FOR ALL TYPES MIN.	TYP.	MAX.	UNITS
Maximum Instantaneous Forward-Voltage Drop: At 1A	V_F	—	—	1.2*	V
Maximum Full-Load Reverse Current: At average full-cycle, lead length = 0.375 in. (9.5mm) T_A = 100°C	I_R	—	—	200	μA
Maximum Reverse Current: At maximum DC reverse (blocking) voltage	I_R	—	—	2	
Maximum Reverse Recovery Time: At I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A	t_{rr}	—	—	2	μs
Typical Junction Capacitance: At frequency = 1 MHz and applied reverse voltage = 4V	C_J	—	15	—	pF

*1.1 V for A14C, A14E, and A14P.

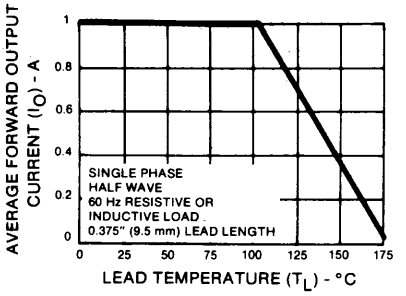


Fig. 1 - Maximum average forward output current characteristic.

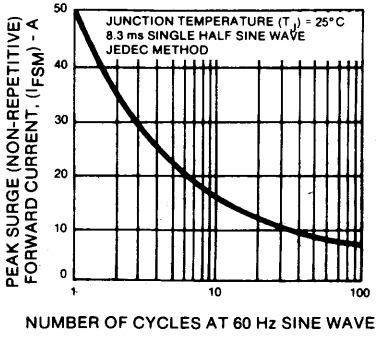


Fig. 2 - Maximum peak surge non-repetitive forward current characteristic.

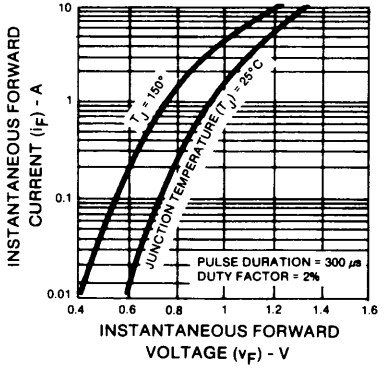


Fig. 3 - Typical instantaneous forward current characteristic.

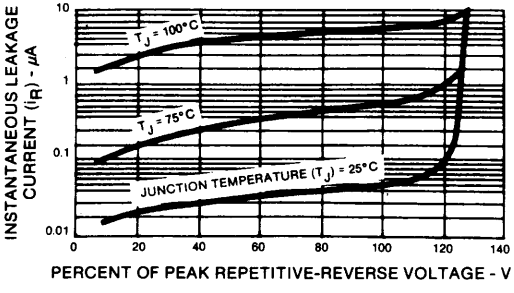


Fig. 4 - Typical reverse leakage current characteristics.

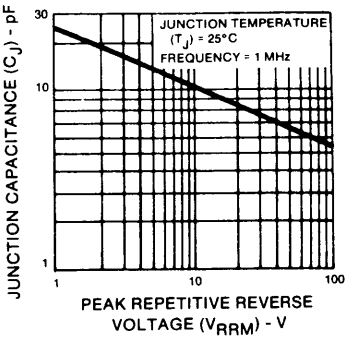


Fig. 5 - Typical junction capacitance characteristic.

A15A, A15F

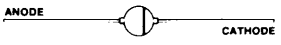
File Number **2175**

3-A, Glass-Passivated Junction Silicon Rectifiers

Features:

- *High temperature metallurgically bonded, no compression contacts as found in diode-constructed rectifiers*
- *Glass passivated junction*
- *3A operation at $T_A = 70°C$ with no thermal runaway*
- *Low reverse current*
- *Exceeds environmental standard of MIL-STD-19500*
- *Hermetically sealed package*
- *High temperature soldering: 350°C/10 s/0.375 in. (9.5mm) lead length*

TERMINAL DESIGNATIONS



GE-3

The GE/RCA A15A and A15F are glass-passivated "transient voltage protected," silicon rectifiers intended for general-purpose applications.

These rectifiers will dissipate up to 100 watts in reverse direction without damage. Voltage transients generated by household or industrial power lines are dissipated.

These rectifiers are supplied in a GE-3 package.

MAXIMUM RATINGS, *Absolute-Maximum Values; for single-phase, 60Hz, half-wave resistive or inductive loads*:*

		A15F	A15A	
MAXIMUM PEAK REPETITIVE REVERSE VOLTAGE,	V_{RRM}	50	100	V
MAXIMUM RMS INPUT (SUPPLY) VOLTAGE,	V_{RMS}	35	70	V
MAXIMUM DC REVERSE (BLOCKING) VOLTAGE,	$V_{R(DC)}$	50	100	V
MAXIMUM AVERAGE FORWARD OUTPUT CURRENT:				
Lead Length = 0.375 in. (9.5 mm); $T_A = 70°C$,	I_O	3		A
MAXIMUM PEAK SURGE (NON—REPETITIVE) FORWARD CURRENT:				
For 8.3 ms half sine wave, superimposed on rated load,	I_{FSM}	125		A
OPERATING JUNCTION AND STORAGE TEMPERATURE,	T_j, T_{stg}	-65 to +175		°C

*For capacitive load derate current by 20%.

ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS		LIMITS FOR ALL TYPES MIN.	TYP.	MAX.	UNITS
Maximum Instantaneous Forward-Voltage Drop: At 3A	V_F	—	—	1.2	V
Maximum Full-Load Reverse Current: At average full-cycle, lead length = 0.375 in. (9.5mm), T_A = 70°C	I_R	—	—	200	μA
Maximum Reverse Current: At maximum DC reverse (blocking) voltage	I_R	—	—	5	
Maximum Reverse Recovery Time: At I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A	t_{rr}	—	—	3	μs
Typical Junction Capacitance: At frequency = 1 MHz and applied reverse voltage = 4V	C_J	—	40	—	pF

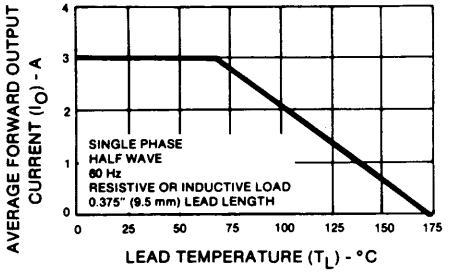


Fig. 1 - Maximum average forward output current characteristic.

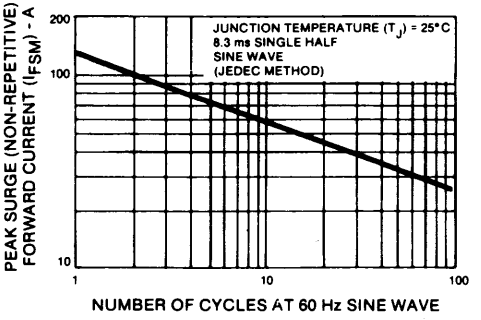


Fig. 2 - Maximum peak surge non-repetitive forward current characteristic.

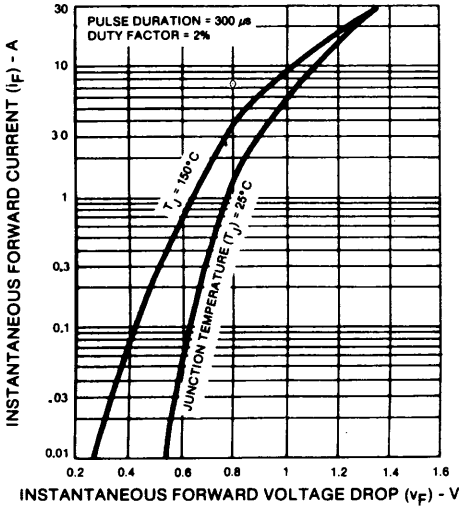


Fig. 3 - Typical instantaneous forward current characteristics.

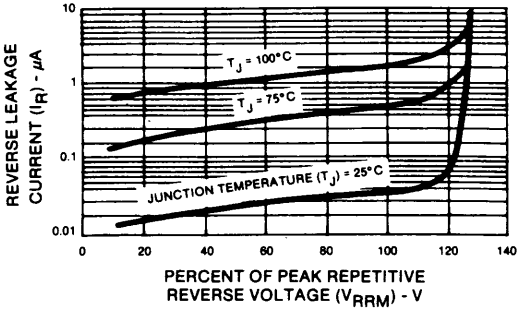


Fig. 4 - Typical reverse leakage current characteristics.

A15A, A15F

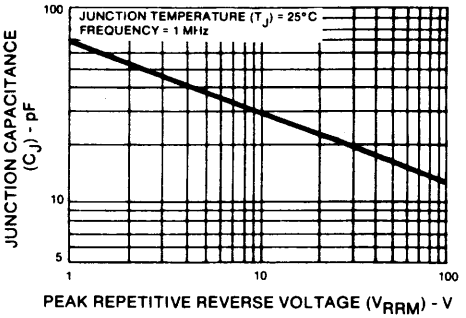


Fig. 5 - Typical junction capacitance characteristic.

File Number **2179**

A114 Series

1-A, High-Speed, High-Efficiency Glass-Passivated Junction Silicon Rectifiers

Features:

- *Glass passivated junction*
- *Fast recovery times*
- *Low forward voltage drop, high-current capability*
- *Low reverse current leakage*
- *High surge current capability*

TERMINAL DESIGNATIONS

DO-204AP

92CS-43475

The GE/RCA A114A, A114B, A114C, A114D, A114E, A114F, and A114M are fast-recovery silicon rectifiers (t_{rr} = 200 ns max.) featuring low forward voltage drop, high-current capability. They use glass passivated epitaxial construction.

These rectifiers are intended for TV deflection, inverter, high-frequency power supplies, energy recovery, and output rectification.

These types are supplied in unitized-glass hermetically-sealed JEDEC DO-204AP package.

4

MAXIMUM RATINGS, *Absolute-Maximum Values; for single-phase, 60-Hz, half-wave resistive or inductive loads*:*

		A114F	A114A	A114B	A114C	A114D	A114E	A114M	
MAXIMUM PEAK REPETITIVE REVERSE VOLTAGE,	V_{RRM}	50	100	200	300	400	500	600	V
MAXIMUM RMS INPUT (SUPPLY) VOLTAGE,	V_{RMS}	35	70	140	210	280	350	420	V
MAXIMUM DC REVERSE (BLOCKING) VOLTAGE,	$V_{R(DC)}$	50	100	200	300	400	500	600	V
MAXIMUM AVERAGE FORWARD OUTPUT CURRENT:									
Lead Length = 0.375 in. (9.5 mm); T_A = 55°C,	I_O	1							A
MAXIMUM PEAK SURGE (NON-REPETITIVE) FORWARD CURRENT:									
For 8.3 ms half sine wave, superimposed on rated load,	I_{FSM}	30							A
OPERATING JUNCTION AND STORAGE TEMPERATURE,	T_j, T_{stg}	−65 to +175							°C

*For capacitive load derate current by 20%.

A114 Series

ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS		LIMITS FOR ALL TYPES MIN.	TYP.	MAX.	UNITS
Maximum Instantaneous Forward-Voltage Drop: At 1A	V_F	—	—	1.3	V
Maximum Full-Load Reverse Current: At average full-cycle, lead length = 0.375 in. (9.5mm) T_A = 25°C	I_R	—	—	1	μA
T_A = 150°C		—	—	100	
Maximum DC Reverse Current at Maximum DC Reverse (Blocking) Voltage	I_R	—	—	2	
Maximum Reverse Recovery Time: At I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A	t_{rr}	—	—	150*	μs
Typical Junction Capacitance: At frequency = 1 MHz and applied reverse voltage = 4V	C_J	—	10	—	pF

*200 ns for A115M.

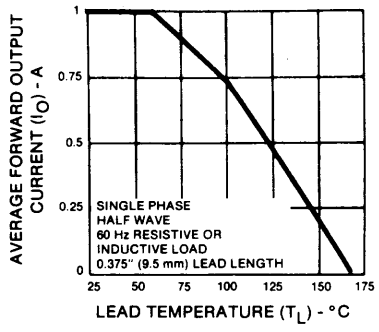


Fig. 1 - Maximum average forward output current characteristic.

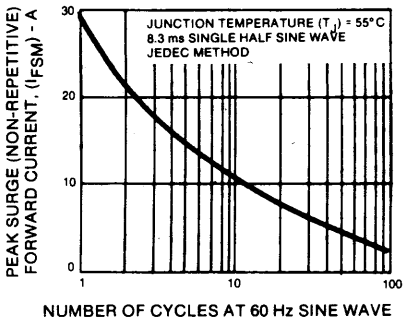


Fig. 2 - Maximum peak surge non-repetitive forward current characteristic.

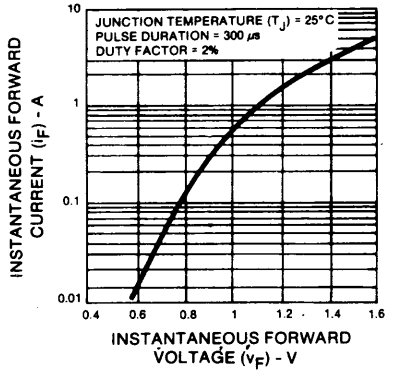


Fig. 3 - Typical instantaneous forward current characteristic.

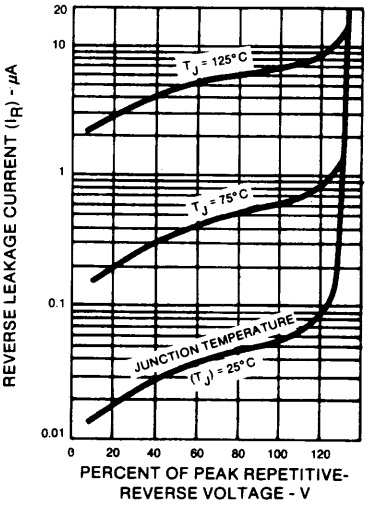


Fig. 4 - Typical reverse leakage current characteristics.

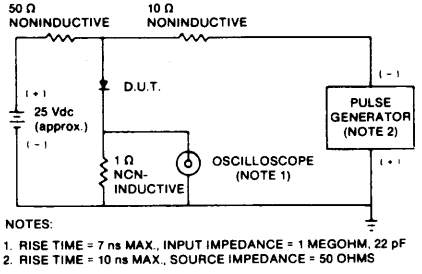


Fig. 5 - Reverse-recovery time test circuit.

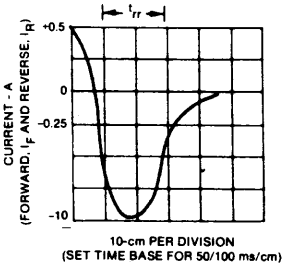


Fig. 6 - Reverse-recovery time waveform.

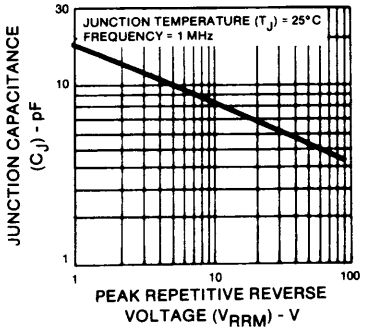


Fig. 7 - Typical junction capacitance characteristic.

A115 Series

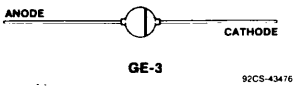
File Number **2180**

3-A, High-Speed, High-Efficiency Glass-Passivated Junction Silicon Rectifiers

Features:

- *Glass passivated junction*
- *Fast recovery times*
- *Low forward voltage drop, high-current capability*
- *Low reverse current leakage*
- *High surge current capability*

TERMINAL DESIGNATIONS



GE-3

92CS-43476

The GE/RCA A115A, A115B, A115C, A115D, A115E, A115F, and A115M are fast-recovery silicon rectifiers (t_{rr} = 250 ns max.) featuring low forward voltage drop, high-current capability. They use glass passivated epitaxial construction.

These rectifiers are intended for TV deflection, inverter, high-frequency power supplies, energy recovery, and output rectification.

These types are supplied in unitized-glass hermetically-sealed GE-3 package.

MAXIMUM RATINGS, *Absolute-Maximum Values; for single-phase, 60-Hz, half-wave resistive or inductive loads*:*

		A115F	A115A	A115B	A115C	A115D	A115E	A115M	
MAXIMUM PEAK REPETITIVE REVERSE VOLTAGE,	V_{RRM}	50	100	200	300	400	500	600	V
MAXIMUM RMS INPUT (SUPPLY) VOLTAGE,	V_{RMS}	35	70	140	210	280	350	420	V
MAXIMUM DC REVERSE (BLOCKING) VOLTAGE,	$V_{R(DC)}$	50	100	200	300	400	500	600	V
MAXIMUM AVERAGE FORWARD OUTPUT CURRENT:									
Lead Length = 0.375 in. (9.5 mm); T_A = 55°C,	I_O	3							A
MAXIMUM PEAK SURGE (NON-REPETITIVE) FORWARD CURRENT:									
For 8.3 ms half sine wave, superimposed on rated load,	I_{FSM}	100							A
OPERATING JUNCTION AND STORAGE TEMPERATURE,	T_j, T_{stg}	−65 to +175							°C

*For capacitive load derate current by 20%.

ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS	LIMITS FOR ALL TYPES MIN.	TYP.	MAX.	UNITS
Maximum Instantaneous Forward-Voltage Drop: V_F At 3A	—	—	1.3	V
Maximum Full-Load Reverse Current: I_R At average full-cycle, lead length = 0.375 in. (9.5mm) T_A = 25°C	—	—	2	μA
T_A = 150°C	—	—	100	μA
Maximum DC Reverse Current at Maximum DC Blocking Voltage I_R	—	—	5	μA
Maximum Reverse Recovery Time: t_{rr} At I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A	—	—	150*	ns
Typical Junction Capacitance: C_J At frequency = 1 MHz and applied reverse voltage = 4V	—	40	—	pF

*250 ns for A115M.

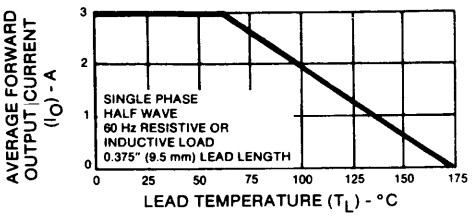


Fig. 1 - Maximum average forward output current characteristic.

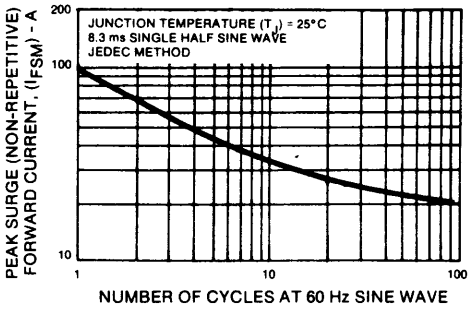


Fig. 2 - Maximum peak surge non-repetitive forward current characteristic.

A115 Series

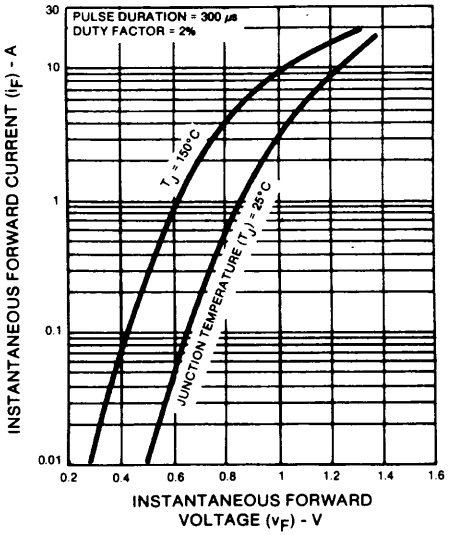


Fig. 3 - Typical instantaneous forward current characteristic.

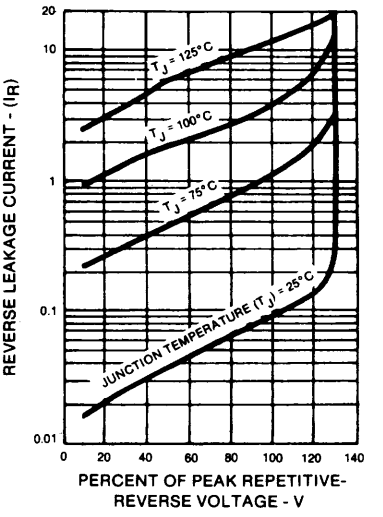


Fig. 4 - Typical reverse leakage current characteristics.

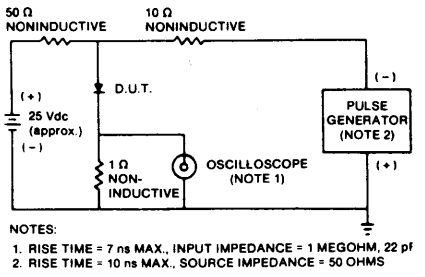


Fig. 5 - Reverse-recovery time test circuit.

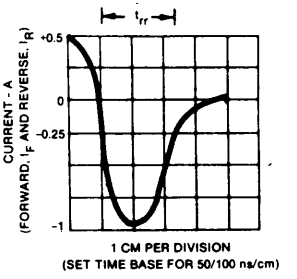


Fig. 6 - Reverse-recovery time waveform.

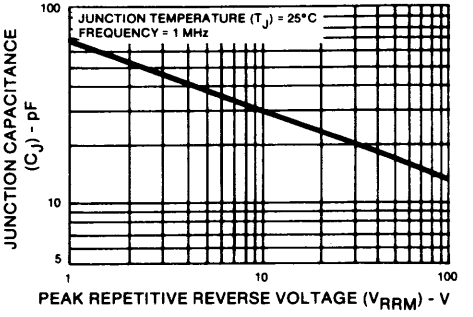


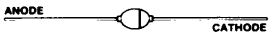
Fig. 7 - Typical junction capacitance characteristic.

File Number **2164**

A214 Series

2-A, High-Speed, High-Efficiency Glass-Passivated Junction Silicon Rectifiers

TERMINAL DESIGNATIONS



DO-204AP

92CS-43475

Features:

- *Glass passivated junction*
- *Ultra-fast recovery times*
- *Low forward voltage drop, high-current capability*
- *Low leakage current*
- *High surge current capability*

The GE/RCA A214A, A214B, A214F, and A214G are ultra-fast recovery silicon rectifiers (t_{rr} = 35 ns max.) featuring low forward voltage drop, high-current capability. They use glass passivated epitaxial construction.

These rectifiers are intended for TV deflection, inverter, high-frequency power supplies, energy recovery, and output rectification.

These types are supplied in unitized-glass hermetically-sealed JEDEC DO-204AP package.

4

MAXIMUM RATINGS, *Absolute-Maximum Values; for single-phase, 60Hz, half-wave resistive or inductive loads*:*

		A214F	A214A	A214G	A214B	
MAXIMUM PEAK REPETITIVE REVERSE VOLTAGE,	V_{RRM}	50	100	150	200	V
MAXIMUM RMS INPUT (SUPPLY) VOLTAGE,	V_{RMS}	35	70	105	105	V
MAXIMUM DC REVERSE (BLOCKING) VOLTAGE,	$V_{R(DC)}$	50	100	150	200	V
MAXIMUM AVERAGE FORWARD OUTPUT CURRENT: Lead Length = 0.375 in. (9.5 mm); T_A = 55°C,	I_O	2				A
MAXIMUM PEAK SURGE (NON-REPETITIVE) FORWARD CURRENT: For 8.3 ms half sine wave, superimposed on rated load,	I_{FSM}	50				A
OPERATING JUNCTION AND STORAGE TEMPERATURE,	T_J, T_{stg}	−65 to +175				°C

*For capacitive load derate current by 20%.

A214 Series

ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS		LIMITS FOR ALL TYPES MIN.	TYP.	MAX.	UNITS
Maximum Instantaneous Forward-Voltage Drop: At 2A	V_F	—	—	0.95	V
Maximum Reverse Current: At maximum DC reverse (blocking) voltage, T_A = 25°C	I_R	—	—	2	μA
T_A = 150°C		—	—	50	
Maximum Reverse Recovery Time: At I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A	t_{rr}	—	—	35	ns
Typical Junction Capacitance: At frequency = 1 MHz and applied reverse voltage = 4V	C_J	—	45	—	pF
Thermal Resistance: Junction-to-Ambient at 0.375 in. (9.5 mm) lead length.	$R\theta_{JA}$	—	60	—	°C/W

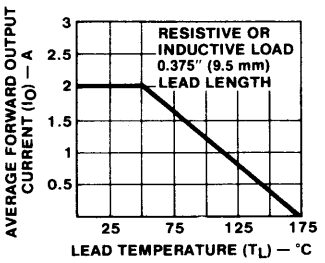


Fig. 1 - Maximum average forward output current characteristic.

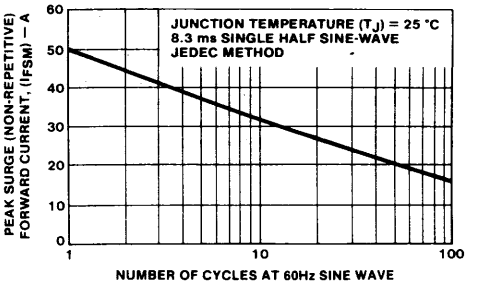


Fig. 2 - Maximum peak surge non-repetitive forward current characteristic.

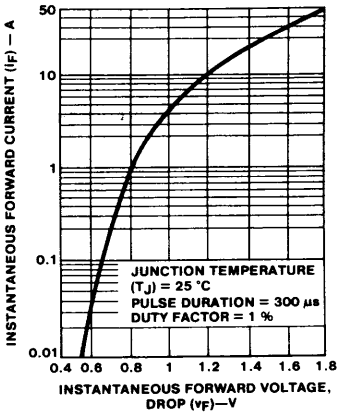


Fig. 3 - Typical instantaneous forward current characteristic.

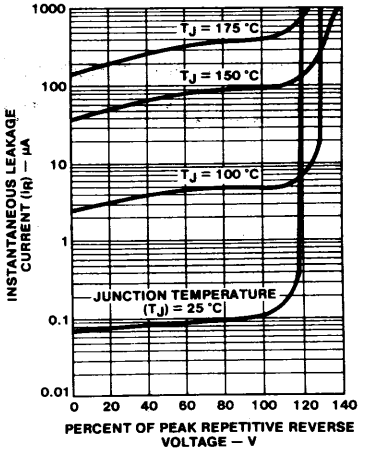


Fig. 4 - Typical reverse leakage current characteristics.

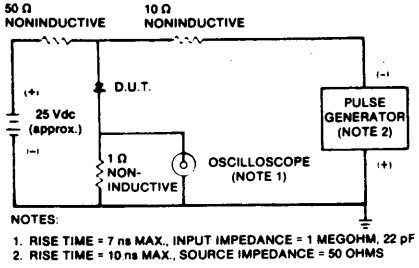


Fig. 5 - Reverse-recovery time test circuit.

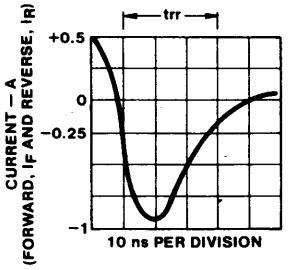


Fig. 6 - Reverse-recovery time waveform.

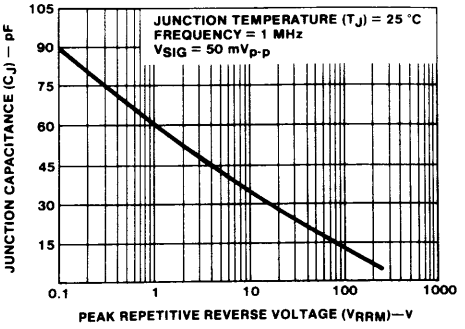


Fig. 7 - Typical junction capacitance characteristic.

A315 Series

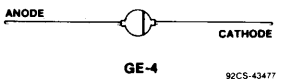
File Number **2163**

3-A, High-Speed, High-Efficiency Glass-Passivated Junction Silicon Rectifiers

Features:

- *Glass passivated junction*
- *Ultra-fast recovery times*
- *Low forward voltage drop, high-current capability*
- *Low leakage current*
- *High surge current capability*

TERMINAL DESIGNATIONS



GE-4

92CS-43477

The GE/RCA A315A, A315B, A315F, and A315G are ultra-fast recovery silicon rectifiers (t_{rr} = 35 ns max.) featuring low forward voltage drop, high-current capability. They use glass passivated epitaxial construction.

These rectifiers are intended for TV deflection, inverter, high-frequency power supplies, energy recovery, and output rectification.

These types are supplied in unitized-glass hermetically-sealed GE-4 package.

MAXIMUM RATINGS, *Absolute-Maximum Values; for single-phase, 60Hz, half-wave resistive or inductive loads*:*

		A315F	A315A	A315G	A315B	
MAXIMUM PEAK REPETITIVE REVERSE VOLTAGE,	V_{RRM}	50	100	150	200	V
MAXIMUM RMS INPUT (SUPPLY) VOLTAGE,	V_{RMS}	35	70	105	105	V
MAXIMUM DC REVERSE (BLOCKING) VOLTAGE,	$V_{R(DC)}$	50	100	150	200	V
MAXIMUM AVERAGE FORWARD OUTPUT CURRENT: Lead Length = 0.375 in. (9.5 mm); T_L = 55°C,	I_O	3				A
MAXIMUM PEAK SURGE (NON—REPETITIVE) FORWARD CURRENT: For 8.3 ms half sine wave, superimposed on rated load, T_L = 55°C,	I_{FSM}	135				A
OPERATING JUNCTION AND STORAGE TEMPERATURE,	T_j T_{stg}	-65 to +175				°C

*For capacitive load derate current by 20%.

ELECTRICAL CHARACTERISTICS, At Ambient Temperature (T_A) = 25°C Unless Otherwise Specified

CHARACTERISTICS		LIMITS FOR ALL TYPES MIN.	LIMITS FOR ALL TYPES TYP.	LIMITS FOR ALL TYPES MAX.	UNITS
Maximum Instantaneous Forward-Voltage Drop: At 3A	V_F	—	—	0.95	V
Maximum Reverse Current: At maximum DC reverse (blocking) voltage, T_A = 25°C	I_R	—	—	3	μA
T_A = 150°C		—	—	50	
Maximum Reverse Recovery Time: At I_F = 0.5A, I_R = 1A, I_{rr} = 0.25A	t_{rr}	—	—	35	ns
Typical Junction Capacitance: At frequency = 1 MHz and applied reverse voltage = 4V	C_J	—	100	—	pF

4

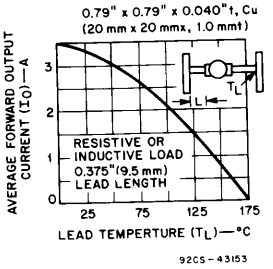


Fig. 1 - Maximum average forward output current characteristic.

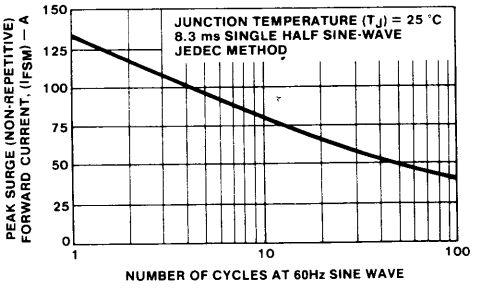


Fig. 2 - Maximum peak surge non-repetitive forward current characteristic.

A315 Series

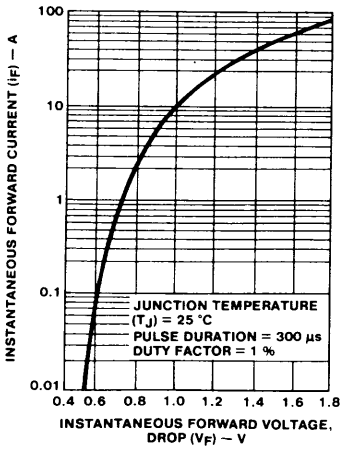


Fig. 3 - Typical instantaneous forward current characteristic.

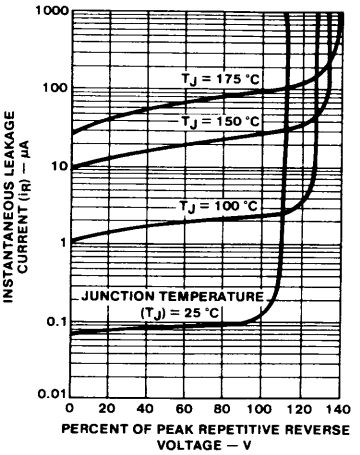


Fig. 4 - Typical reverse leakage current characteristics.

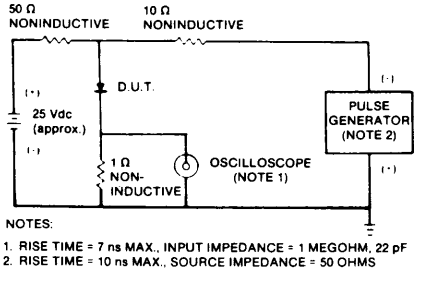


Fig. 5 - Reverse-recovery time test circuit.

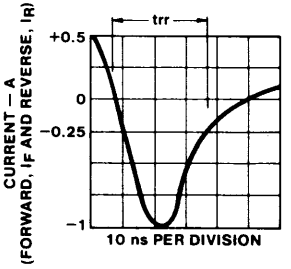


Fig. 6 - Reverse-recovery time waveform.

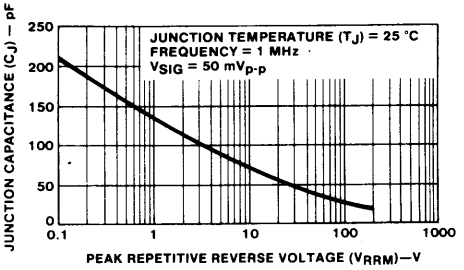


Fig. 7 - Typical junction capacitance characteristic.