SILICON PLANAR INTEGRATED POWER RECTIFIERS

FAST SWITCHING

12 AMPS – 6 AMPS PER CHIP

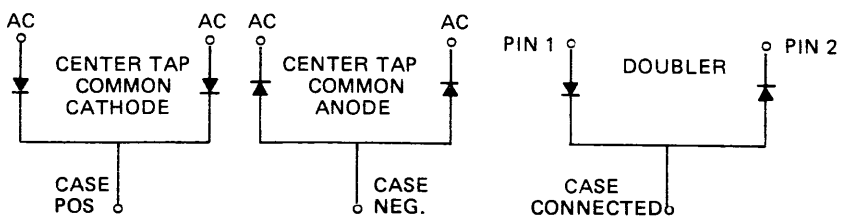
TYPES SPDA 6205 thru SPDA 6230

HIGH FREQUENCY, FAST RECOVERY

- 50–300 Volts, 6 Amps Per Chip
- 125 nsec typical recovery time
- Designed to meet stringent environmental requirements
- Typical dissipation, 0.5°C per watt
- Exceptional efficiency at high frequency
- Applications: high frequency power supplies, high-speed power switches and multiphase rectifier operation
- Hermetic TO-3 construction

This Solitron Planar Series utilizes ultrasonic bonding and eutetic die mounting with thermal matching for hi-rel applications. Standard low cost TO-3 package and fast switching for circuit efficiency makes it ideal for commercial applications.

CIRCUIT CONFIGURATIONS AVAILABLE



NOTE: PLEASE SPECIFY AS COMMON ANODE (CA), COMMON CATHODE (CC) OR DOUBLER (DR) – EX: SPDA 6205 CA

***ABSOLUTE MAXIMUM RATINGS AT SPECIFIED CAST TEMPERATURE PER CHIP**

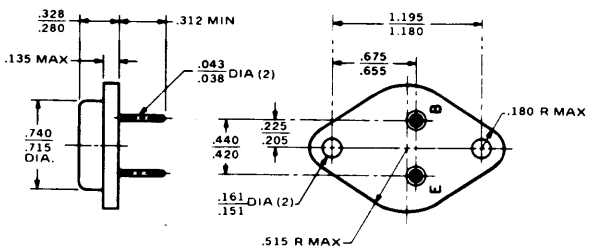
SOLITRON PART NUMBER		SPDA 6205	SPDA 6210	SPDA 6220	SPDA 6230	UNIT
V_{BR}	Peak Reverse Voltage Temp. range from –65°C to 150°C	60	120	240	360	V
V_R	Rated Peak Reverse Voltage Temp. range from –65°C to 150°C	50	100	200	300	V
V_{RMS}	Sinusoidal rated voltage Temp. range from –65°C to 150°C	35	70	140	210	V
I_O	Peak rectified forward current Temp. range from –65°C to 100°C	6				A
t_{rr}	Reverse Recovery time	200				ns
T_{STG}	Storage temperature Non-Operating	–65 to +200				°C
T_{OP}	Operating Temperature	–65 to +150				°C
$\Theta_{J\text{-}C}$	Thermal Resistance (Junction to Case)	1.25°C/Watt				

Solitron DEVICES, INC.

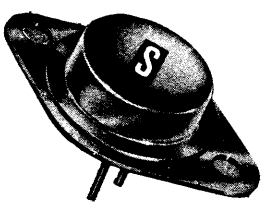
1177 Blue Heron Blvd., Riviera Beach, Florida 33404, Tel 305 / 848-4311

ELECTRICAL CHARACTERISTICS AT 25°C CASE TEMPERATURE PER CHIP
unless otherwise specified

PARAMETER	TEST CONDITIONS	TYPICAL	MAX	UNIT
I_R Reverse Current	At Rated V_{BR}		1	μA
	At Rated V_R	.1	.5	μA
I_R Reverse Current	At 80% V_R	.05	.250	μA
	At 80% V_R – 100°C	3	10	μA
	At 80% V_R – 150°C	25	50	
V_F Forward Voltage	At I_F (Max. 6 Amp)	.9	1.2	V
V_{FM} Peak Forward Voltage	At I_F (Max. 6 Amp) Pulse tested	1.2	1.4	V
I_S Max. Surge	Operating at I_{RMS}=4 Amp, V_{RMS}=Rated V_{RMS} Pulsed at 60 CPS half-sine wave Repeated after return to thermal equilibrium		150 (Min.)	A
I_{rr} Reverse	At $I_R = I_F$ = 1 Amp	1.5	2.0	A
t_{rr} Recovery		125	200	ns
C_T Capacitance	At V_R = 1 V, f = 1 MHz	100	150	pF

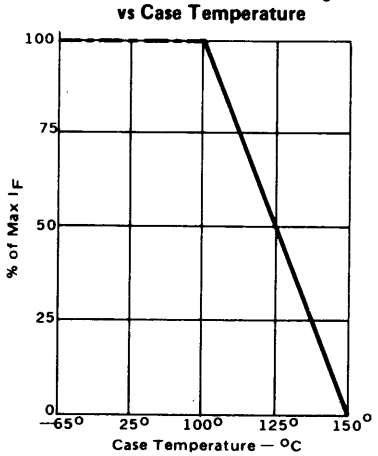


NOTE PIN CONFIGURATION

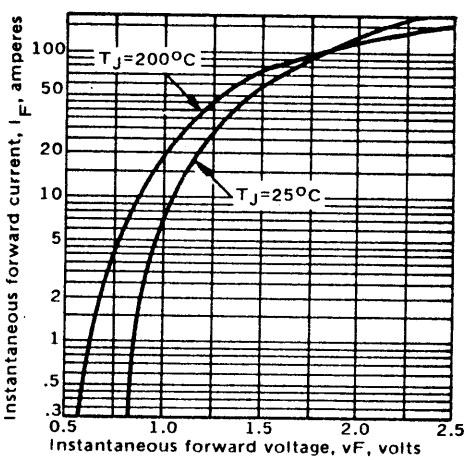


TO-3

Forward Current Derating vs Case Temperature



MAXIMUM FORWARD CHARACTERISTICS



SILICON PLANAR INTEGRATED POWER RECTIFIERS

FAST SWITCHING

24 AMPS – 12 AMPS PER CHIP

TYPES SPDA 12205 thru SPDA 12230

HIGH FREQUENCY, FAST RECOVERY

- 50–300 Volts, 12 Amps Per Chip
- 150 nsec typical recovery time
- Designed to meet stringent environmental requirements
- Typical dissipation, 0.5°C per watt
- Exceptional efficiency at high frequency
- Applications: high frequency power supplies, high-speed power switches and multiphase rectifier operation
- Hermetic TO-3 construction

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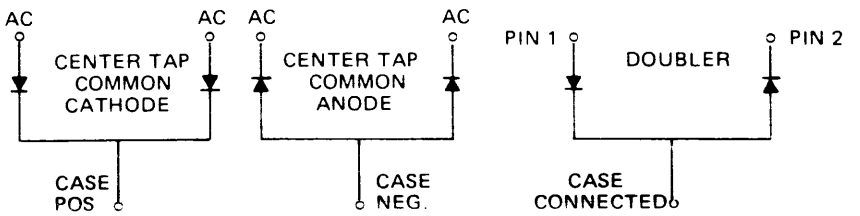
CIRCUIT CONFIGURATIONS AVAILABLE



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ABSOLUTE MAXIMUM RATINGS AT SPECIFIED CASE TEMPERATURE PER CHIP

	SOLITRON PART NUMBER	SPDA 12205	SPDA 12210	SPDA 12220	SPDA 12230	UNIT
V_{BR}	Peak Reverse Voltage Temp. range from –65°C to 150°C	60	120	240	360	V
V_R	Rated Peak Reverse Voltage Temp range from –65°C to 150°C	50	100	200	300	V
V_{RMS}	Sinusoidal rated voltage Temp. range from –65° to 150°C	35	70	140	210	V
I_o	Peak rectified forward current Temp. range from –65°C to 100°C	12				A
T_{rr}	Reverse Recovery Time	200				ns
T_{STG}	Storage Temperature Non-Operating	–65 to +200				°C
T_{OP}	Operating Temperature	–65 to +150				°C
Θ_{J-C}	Thermal Resistance (Junction to Case)	1.25°C/Watt				

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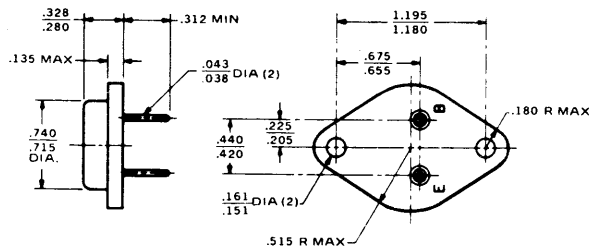
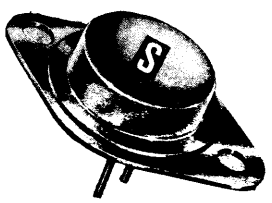
ELECTRICAL CHARACTERISTICS AT 25°C CASE TEMPERATURE PER CHIP
unless otherwise specified

PARAMETER	TEST CONDITIONS	TYPICAL	MAX	UNIT
I_R Reverse Current	At Rated V_{BR} At Rated V_{BR}	 .1	1 .5	 μA
I_R Reverse Current	At 80% V_R At 80% V_R – 100°C At 80% V_R – 150°C	.100 5 10	.250 10 50	μA
V_F Forward Voltage	At I_F (Max. 12 Amp)	.9	1.2	V
V_{FM} Peak Forward Voltage	At I_F (Max 12 Amp) Pulse Tested	1.2	1.4	V
I_S Max. Surge Capability	Operating at I_{RMS}=4 Amp, V_{RMS}=Rated V_{RMS} Pulsed with 60 CPS half-sine wave. Repeated after return to thermal equilibrium		200 (Min.)	
I_{rr} Reverse t_{rr} Recovery	At I_R = I_F = 1 Amp	1.5 125	2.0 200	A ns
C_T Capacitance	At V_B= 1V, f= 1 MHz	200	300	pF

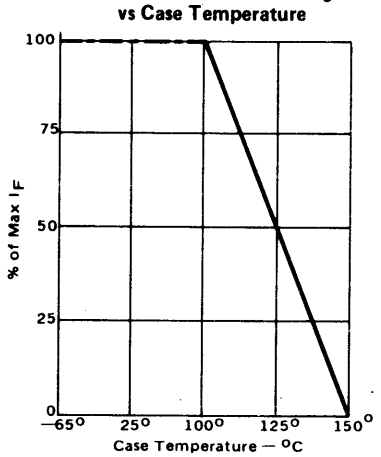


NOTE PIN CONFIGURATION



TO-3

Forward Current Derating vs Case Temperature



MAXIMUM FORWARD CHARACTERISTICS