



PFC Device Corporation

P20V45SP

20A 45V MOS Schottky Rectifier

Major ratings and characteristics

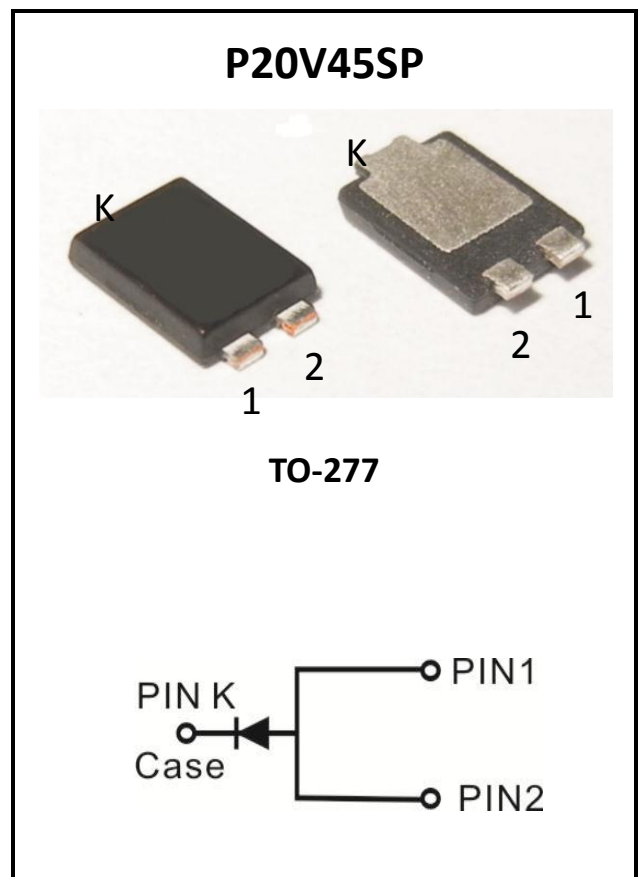
Characteristics	Values	Units
$I_{F(AV)}$ Rectangular Waveform	20	A
V_{RRM}	45	V
$V_F@ 20A, T_j=125^\circ C$	0.42	V,typ.
T_j Operating Junction Temperature	-65 to +150	$^\circ C$

Features

- Ultra Low Forward Voltage Drop
- Reliable High Temperature Operation
- Softest, fast switching capability
- 150 $^\circ C$ Operating Junction Temperature
- Lead Free Finish, RoHS Compliant
- Green Molding Compound (No Br, Sb)

Typical Applications

Device optimized for ultra-low forward voltage drop to maximize efficiency in Power Supply applications



1. Characteristics

Maximum Ratings Characteristics

($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Values	Units
DC Blocking Voltage	V_{RM}	45	Volts
Working Peak Reverse Voltage	V_{RWM}		
Peak Repetitive Reverse Voltage	V_{RRM}		
Average Rectified Forward Current Per device	I_o	20	Amps
Peak Forward Surge Current - 1/2 60hz	I_{FSM}	275	Amps
Peak Repetitive Reverse Surge Current (2uS-1Khz)	I_{RRM}	2	Amps
Typical Thermal Resistance			
Thermal Resistance junction to Ambient Note (1)	$R\theta_{JA}$	72	$^\circ\text{C} / \text{W}$
Thermal Resistance junction to Ambient Note (2)	$R\theta_{JA}$	30	
Maximum Rate of Voltage Change (at Rated VR)	dv/dt	10000	V/uS
Operating Junction Temperature	T_J	- 65 to +150	$^\circ\text{C}$
Storage Junction Temperature	T_{STG}	- 65 to +150	

Electrical Characteristics - (per leg)

($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions		Symbol	Typ.	Max.	Units
Instantaneous Forward Voltage	IF = 3 A	$T_J = 25^\circ\text{C}$	VF*	0.32	----	Volts
	IF = 20 A			0.45	0.52	
	IF = 3 A	$T_J = 125^\circ\text{C}$	VF*	0.23	----	
	IF = 20 A			0.42	0.48	
Instantaneous Reverse Current	At V_{RM}	$T_J = 25^\circ\text{C}$	IR*	----	300	μA
		$T_J = 100^\circ\text{C}$		----	20	mA

* Pulse width < 300 uS, Duty cycle < 2%

Note 1. FR-4 PCB, 2 oz Copper. Minimum recommended pad layout

Note 2. Polyimide PCB, 2 oz Copper. Cathode pad dimensions 18.8x14.4mm , Anode pad dimensions- (5.6x14.4mm)



2. Characteristics Curves

Ratings and Characteristics Curves

(TA = 25°C unless otherwise specified)

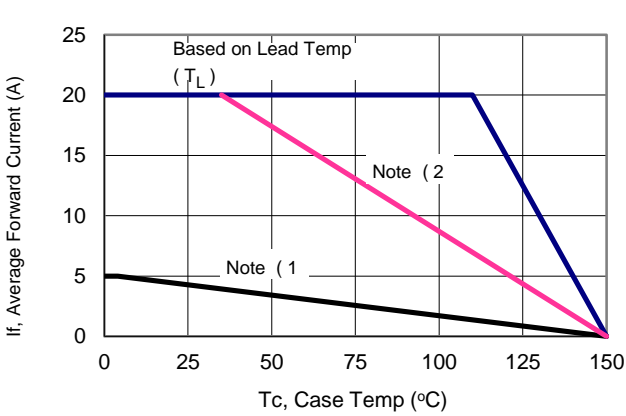


Figure 1: Current Derating, Case

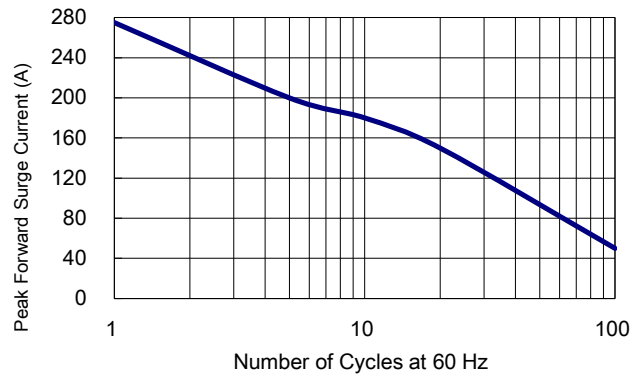


Figure 2: Maximum Repetitive Surge Current

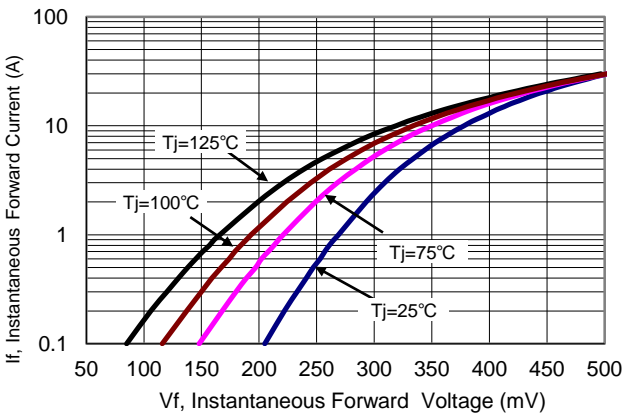


Figure 3: Typical Forward Voltage

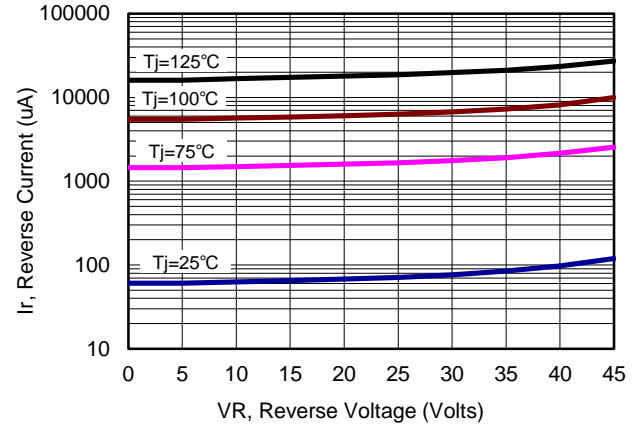


Figure 4: Typical Reverse Current

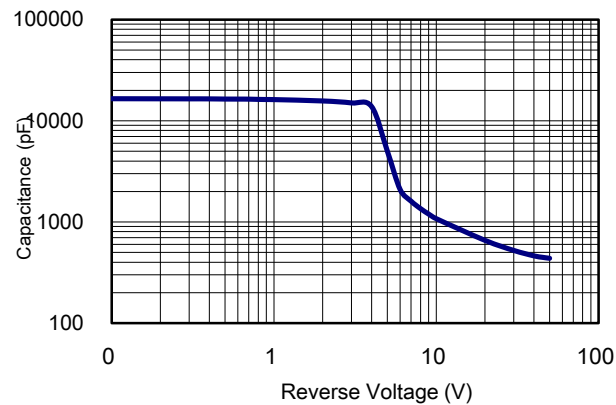
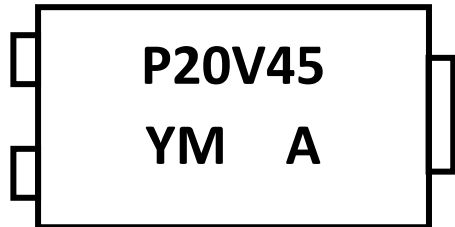


Figure 5: Typical Junction Capacitance



3. Marking information

Top Marking Rule



P20V45 = Product Type Marking Code

YM = Date Code

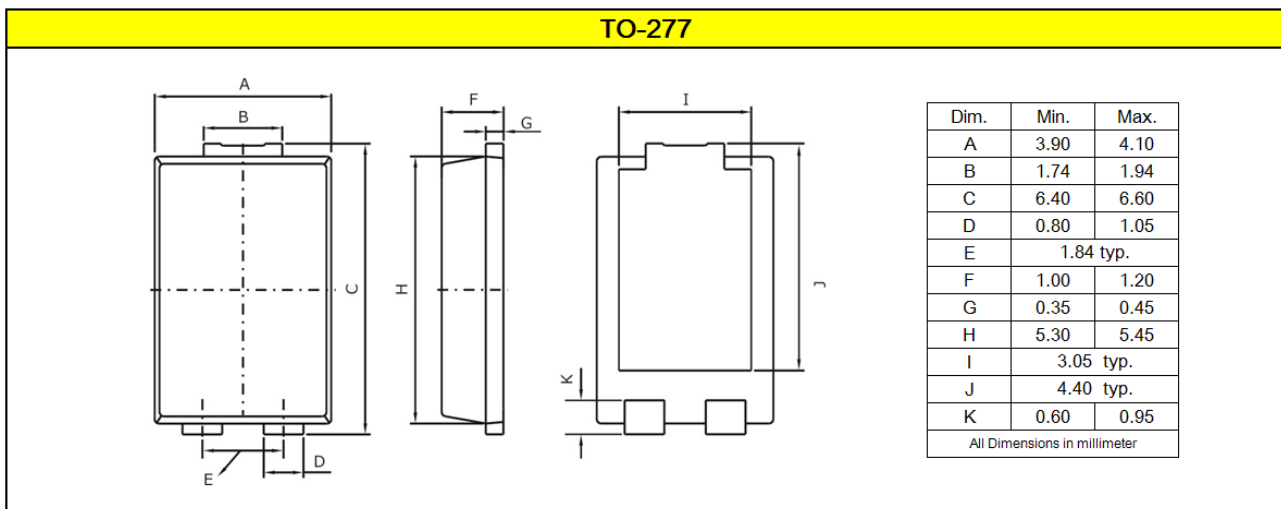
Y = Last one digits of year

M = Month code

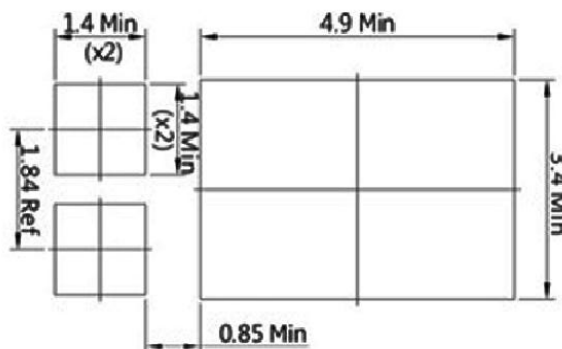
A = Assembly Code

4. Package information

Suggested Package Outline Dimensions millimeters

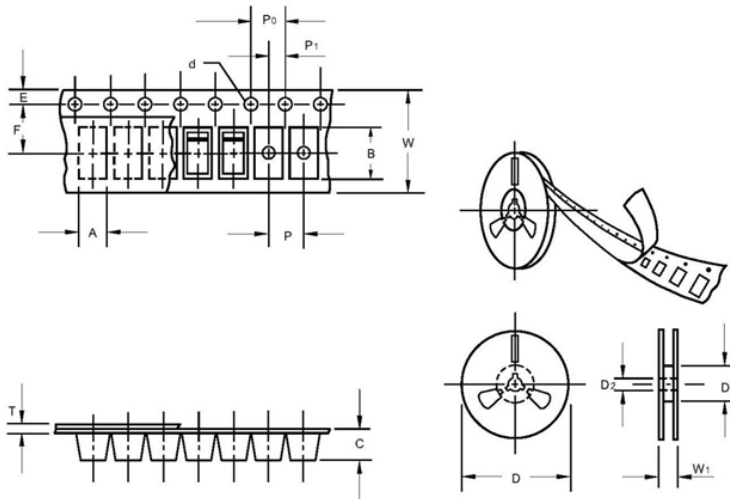


Mounting pad Outline Dimensions millimeters



5. Packing and Ordering information

Packing information millimeters



Item	Symbol	Dimension
Carrier width	A	4.4±0.10
Carrier length	B	7.0±0.10
Carrier depth	C	1.4±0.10
Sprocket hole	d	1.5±0.10
Reel outside diameter	D	330.0±1.0
Reel inner diameter	D1	75±1.0
Feed hole diameter	D2	13.5±1.0
Stocket hole position	E	1.75±0.10
Punch hole position	F	7.5±0.10
Punch hole pitch	P	8.0±0.10
Sprocket hole pitch	P0	4.0±0.10
Embossment center	P1	2.0±0.10
Total tape thickness	T	0.3±0.10
Tape width	W	16.0±0.20
Reel width	W1	22.7±1.5

Ordering information

Part Number	Package	Base Quantity	Delivery mode
P20V45SP	TO-277	5000	13" diameter plastic tape and reel

Mechanical

- Molder Plastic: UL Flammability Classification Rating 94V-0
- Device Weight : 0.003 ounces (0.093grams) - TO-277

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