



the following features are made possible in a single device:

Major ratings and characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular Waveform	20	A
V_{RRM}	200	V
$V_F @ 10A, T_j=125^\circ C$	0.74	V, typ
$T_j(\text{operating/storage})$	-65 to 175	$^\circ C$

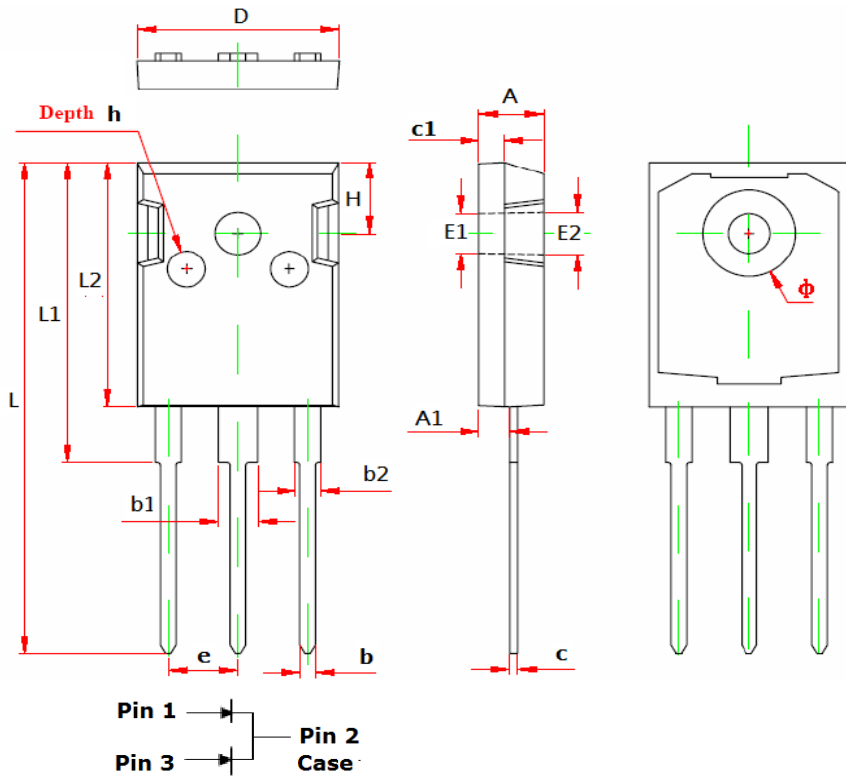
Device optimized for lower forward voltage drop to maximize efficiency in Power Supply applications

ELECTRICAL:

- * Lower Forward Voltage Drop
- * Reliable High Temperature Operation
- * Softest, fast switching capability
- * 175 $^\circ C$ Operating Junction Temperature
- * Lead Free Finish, RoHS Compliant

MECHANICAL:

- * Molded Plastic TO-247 packages
- * Weight : 0.20 ounces (5.60 grams)



ESAD9202		
TO-247		
DIM	MIN	MAX
A	4.70	5.30
A1	2.10	2.60
b	1.00	1.40
b1	2.80	3.20
b2	1.80	2.20
c	0.50	0.80
c1	1.90	2.10
D	15.70	16.30
E1	3.60REF.	
E2	3.80REF.	
L	40.90	41.90
L1	24.60	26.60
L2	21.00	22.00
ϕ	7.00	7.40
e	5.50TYP.	
H	6.00REF.	
h	2.70REF.	
ALL Dimensions in millimeter		



Maximum Ratings and Electrical Characteristics

(at 25°C unless otherwise specified)

	SYMBOL			UNITS
DC Blocking Voltage	V_{RM}	200		Volts
Working Peak Reverse Voltage	V_{RWM}			
Peak Repetitive Reverse Voltage	V_{RRM}			
Average Rectified Forward Current (Rated V_R -20Khz Square Wave) - 50% duty cycle	I_O	20		Amps
Peak Forward Surge Current - 1/2 60hz	I_{FSM}	250		Amps
Peak Repetitive Reverse Surge Current (2uS-1Khz)	I_{RRM}	1		Amps
Instantaneous Forward Voltage (per leg) $I_F = 10A; T_J = 25^\circ C$ $I_F = 10A; T_J = 125^\circ C$	V_F^*	Typ 0.84 0.74	Max 0.95 0.85	Volts
Maximum Instantaneous Reverse Current at Rated V_{RM} $T_J = 25^\circ C$ $T_J = 125^\circ C$	I_R	Typ 80 1.2	Max 200 15	uA mA
Maximum Reverse Recovery Time (at $I_F=0.1A, I_R=0.2A, I_{rec}=0.05A$)	T_{rr}	40		nS
Maximum Rate of Voltage Change (at Rated V_R)	dv/dt	10,000		V/uS
Maximum Thermal Resistance JC (per leg) Package = TO-247	R_{thJC}	1.5		°C/W
Operating Junction Temperature	T_J	-65 to +175		°C
Storage Junction Temperature	T_{STG}	-65 to +175		°C

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

* Conduction Loss (Pcond) = $V_{to} \times I_{F(av)} + r_d \times I_{F(RMS)}^2 = 0.747 \times I_{F(av)} + 0.0092 \times I_{F(RMS)}^2$

$I_{F(av)}$: average forward current in the diode

$I_{F(RMS)}$: RMS forward current in the diode.

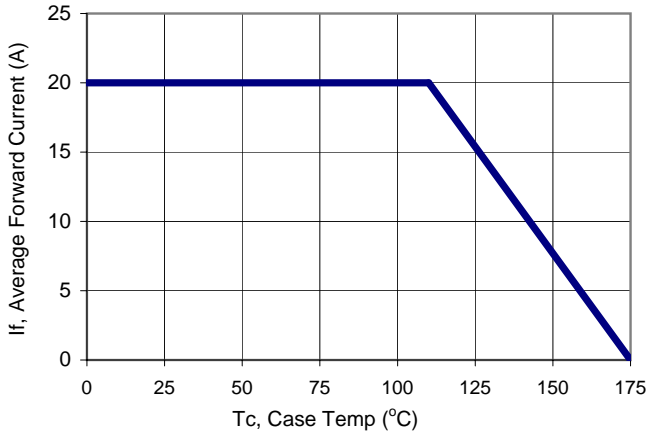


Figure 1: Current Derating, Case

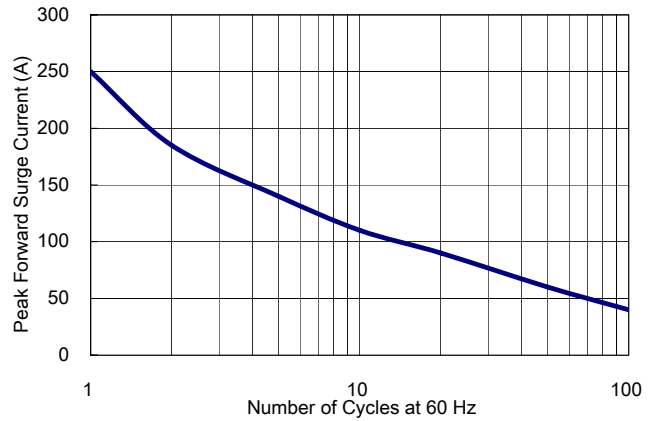


Figure 2: Maximum Repetitive Surge Current

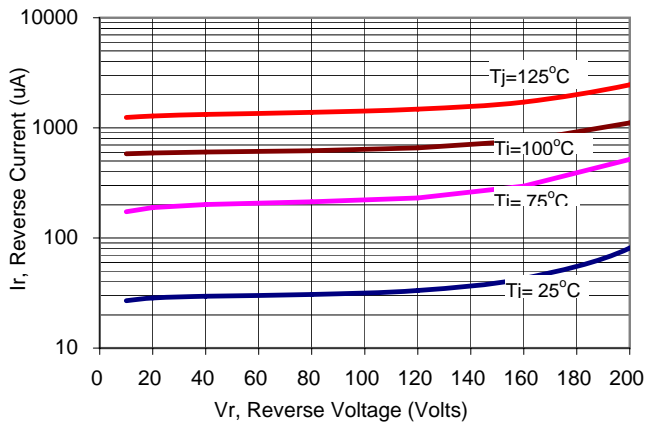


Figure 3: Typical Reverse Current

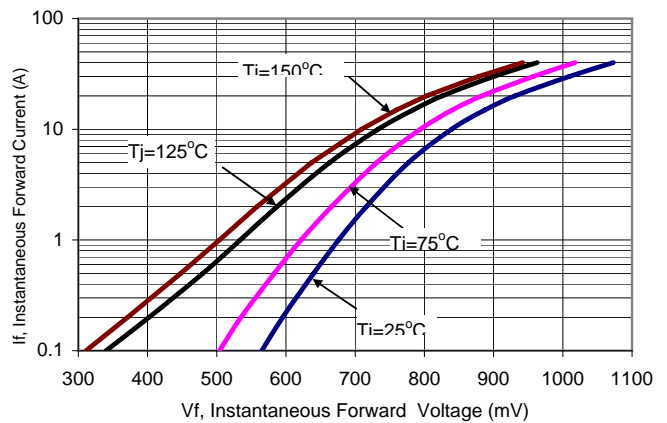


Figure 4: Typical Forward Voltage

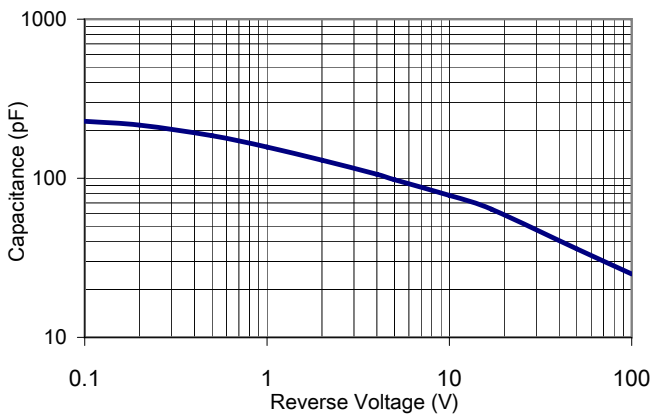


Figure 5: Typical Junction Capacitance

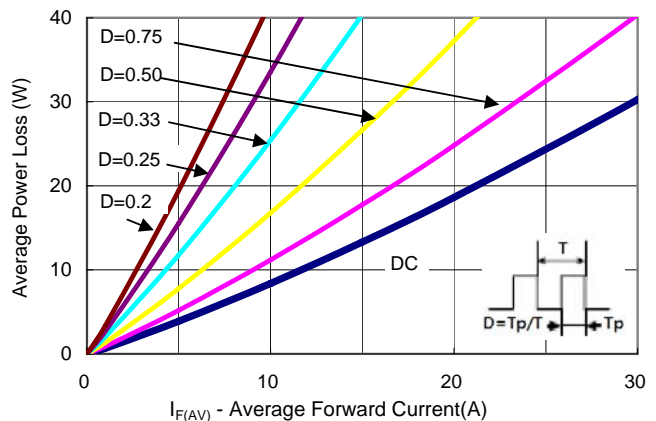


Figure 6: Forward Power Loss characteristics

Note : Formula used $T_c = T_j - (P_d + P_{d_{REV}}) \times R_{thj_c}$

P_d = Forward power loss = $I_{F(AV)} \times V_{FM}$ at $(I_{F(AV)} / D)$ (see figure 6)

$P_{d_{REV}}$ = Inverse power loss = $V_{R1} \times I_R (1 - D)$; I_R at $V_{R1} = 10V$



Ordering information

<i>Part Number</i>	<i>Case</i>	<i>Packaging</i>
ESAD9202	TO-247	30 pieces / tube
ESAD9202H	TO-247	30 pieces / tube

Note: For Halogen Free molding compound, add "H" suffix to part number above.

Marking information

PFC ESAD9202 YYWW ABH

ESAD9202 = Product Type Marking Code
YYWW = Date Code
YY = Last two digits of year
WW = Week code
AB = Assembly code
H = Halogen Free (N/A = common molding compound)

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