

## 400V, 10A ULTRAFast RECOVERY RECTIFIERS

### Features

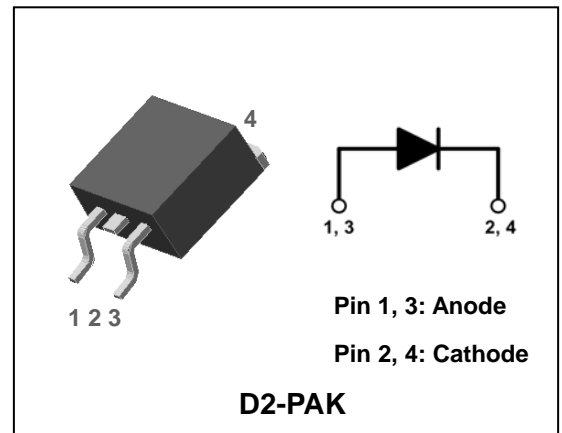
- High voltage and high reliability
- Ultrafast reverse recovery time
- High speed switching
- Low power loss and High efficiency
- Full lead (Pb)-free and RoHS compliant device

### Applications

- General purpose
- Switching mode power supply
- Free-wheeling diode for motor application
- Power switching circuits
- DC-DC converter systems

### Description

The SF10S400D2 is ideally as boost diode in discontinuous or critical mode power factor corrections. The device is also intended for use as a freewheeling diode in power supplies and other power switching applications.



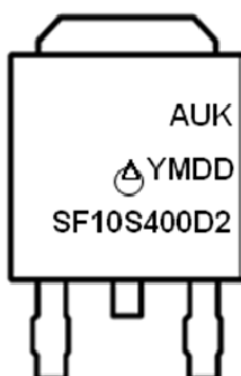
### Product Characteristics

$I_{F(AV)}$	10A
$V_{RRM}$	400V
$V_{FM}$ at 125°C	1.25V
$t_{rr}$	30ns

### Ordering Information

Device	Marking Code	Package	Packaging
SF10S400D2	SF10S400D2	D2-PAK	Tape & Reel

### Marking Information



AUK = Manufacture Logo  
 Δ = Control Code of Manufacture  
 YMDD = Date Code Marking  
 -. Y = Year Code  
 -. M = Monthly Code  
 -. DD = Daily Code  
 SF10S400D2 = Specific Device Code

## Absolute Maximum Ratings (Limiting Values)

Characteristic	Symbol	Value	Unit
Maximum repetitive reverse voltage Maximum working peak reverse voltage Maximum DC blocking voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	400	V
Maximum average forward rectified current	$I_{F(AV)}$	10	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	120	A
Storage temperature range	$T_{stg}$	-45°C to +150°C	°C
Maximum operating junction temperature	$T_J$	150	°C

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	3.0	°C/W

## Electrical Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Peak forward voltage drop	$V_{FM}^{(1)}$	$I_{FM} = 10A$	$T_J = 25^\circ C$	-	-	1.40	V
			$T_J = 125^\circ C$	-	-	1.20	V
Reverse leakage current	$I_{RM}^{(1)}$	$V_R = V_{RRM}$	$T_J = 25^\circ C$	-	-	20	uA
			$T_J = 125^\circ C$	-	-	200	uA
Reverse recovery time	$t_{rr}$	$I_F = 1A, di/dt = -100 A/us$	-	-	30	ns	
Junction capacitance	$C_j$	$V_R = 10V_{DC}, f=1MHz$	-	65	-	pF	

**Note :** (1) Pulse test :  $t_p \leq 380 \mu s$ , Duty cycle  $\leq 2\%$

Electrical Characteristic Curves

Fig.1  $I_F - V_F$

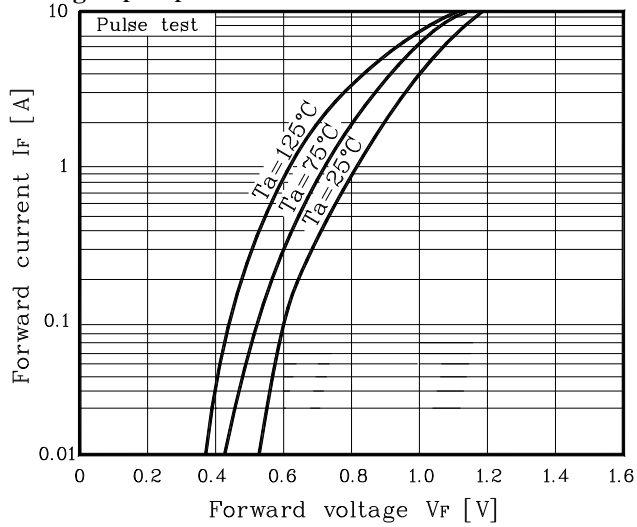


Fig. 2  $I_R - V_R$

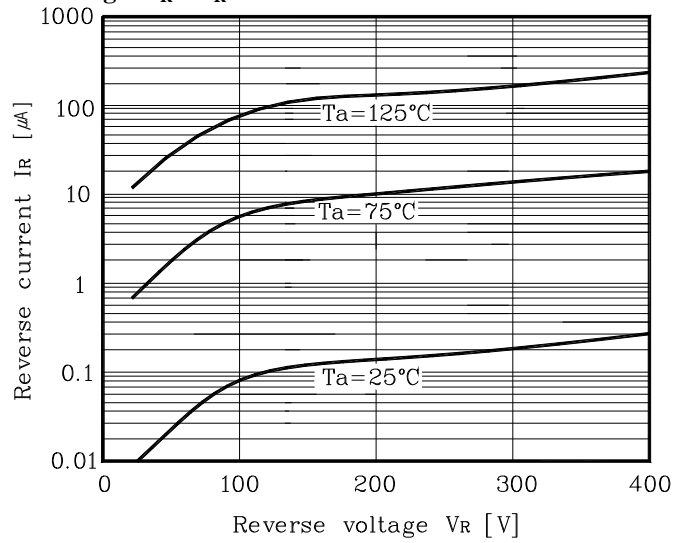


Fig. 3  $P_F - I_O$

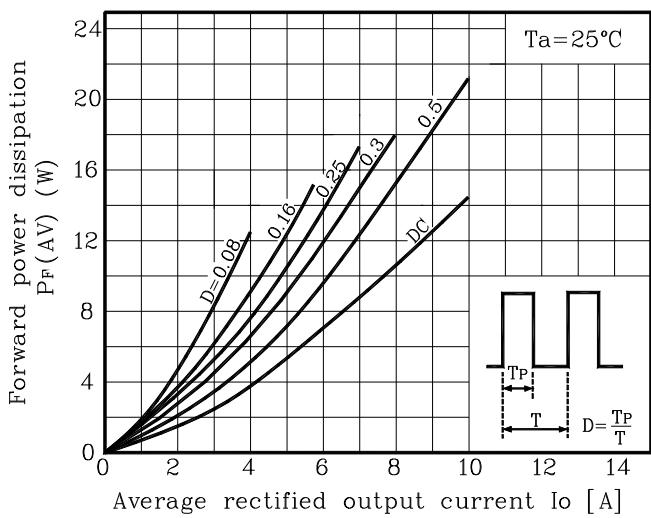


Fig. 4  $C_T - V_R$

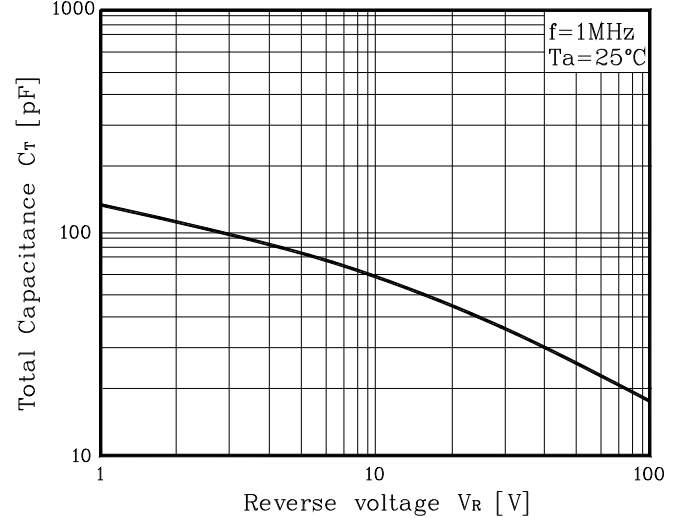


Fig. 5  $I_{FSM} - \text{Number of cycle}$

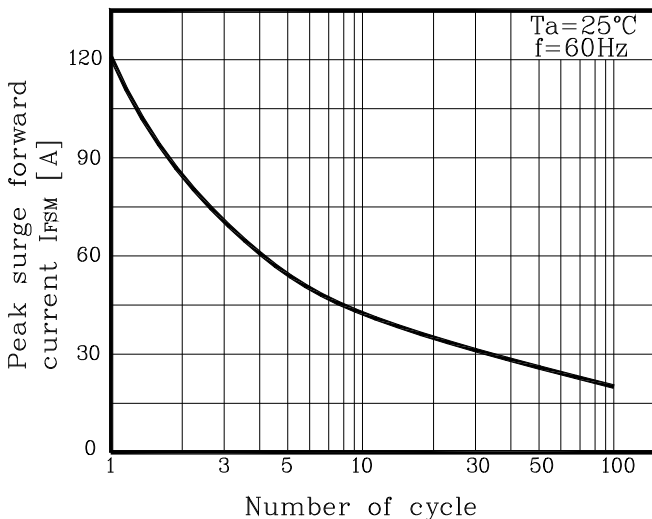
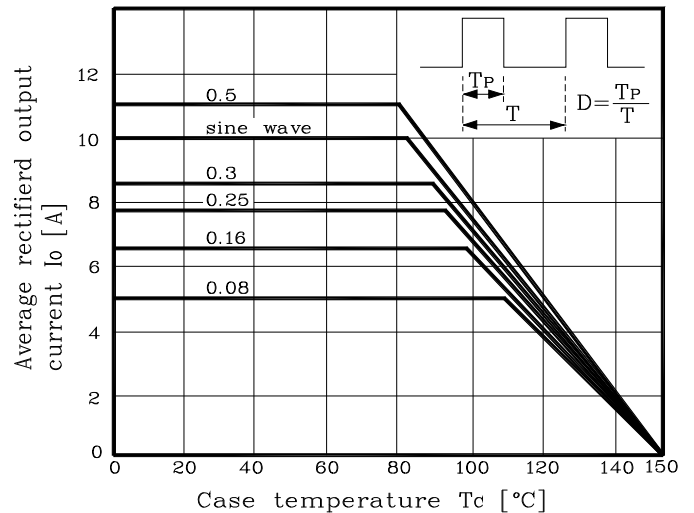
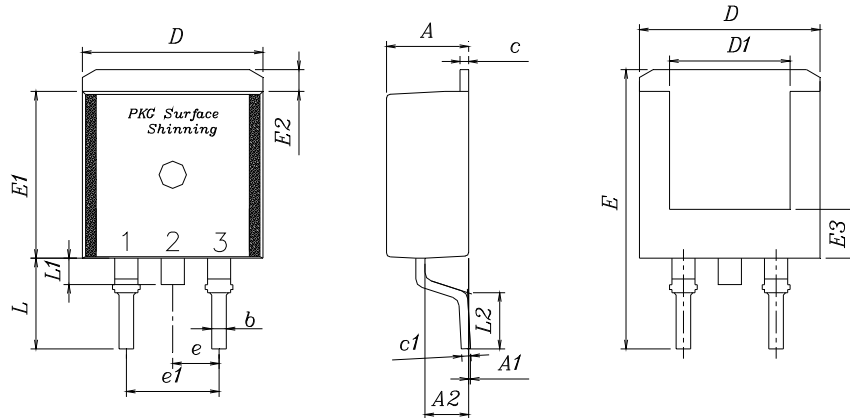


Fig. 6  $I_O$  derating -  $T_c$

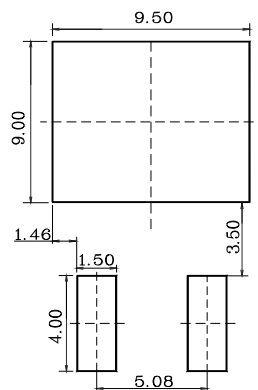


## Package Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	4.35	4.50	4.65	
A1	—	—	0.15	
A2	2.20	2.40	2.60	
b	0.70	0.80	0.90	
c	0.40	0.50	0.60	
c1	0.40	0.50	0.60	
D	9.80	10.00	10.20	
D1	6.40	6.60	6.80	
E	15.00	15.40	15.80	
E1	9.05	9.20	9.35	
E2	1.00	1.20	1.40	
E3	2.50	2.70	2.90	
e	2.34	2.54	2.74	
e1	4.88	5.08	5.28	
L	4.60	5.00	5.40	
L1	1.40	1.45	1.50	
L2	2.50	—	—	

※ Recommend PCB solder land (Unit: mm)



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