

## ULTRA FAST RECOVERY POWER RECTIFIER

### Features

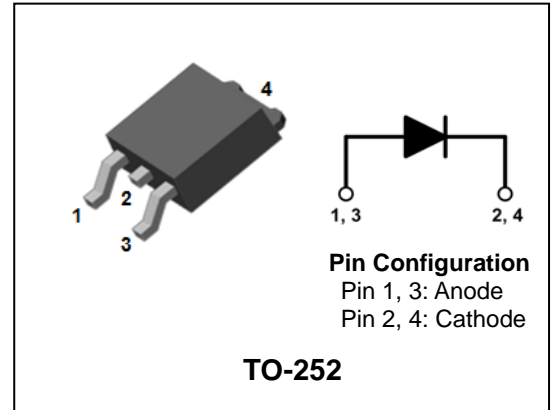
- High voltage and high reliability
- Ultrafast reverse recovery time
- High speed switching
- Low power loss and High efficiency
- Halogen-free component and RoHS compliant device

### Applications

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

### Description

The SF10A400HD 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.



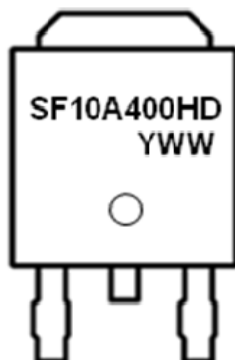
### Product Characteristics

$I_{F(AV)}$	10A
$V_{RRM}$	400V
$V_{FM} @ T_j=125^{\circ}C$	1.2V
$t_{rr}$	30ns

### Ordering Information

Device	Marking Code	Package	Packaging
SF10A400HD	SF10A400HD	TO-252	Tape & Reel

### Marking Information



SF10A400HD = Specific Device Code

YWW = Year & Week Code Marking

- . Y = Year Code

- . WW = Week 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	$I_{FSM}$	60	A
Storage temperature range	$T_{stg}$	-45 to +150	°C
Maximum operating junction temperature	$T_J$	150	

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	6.0	°C/W

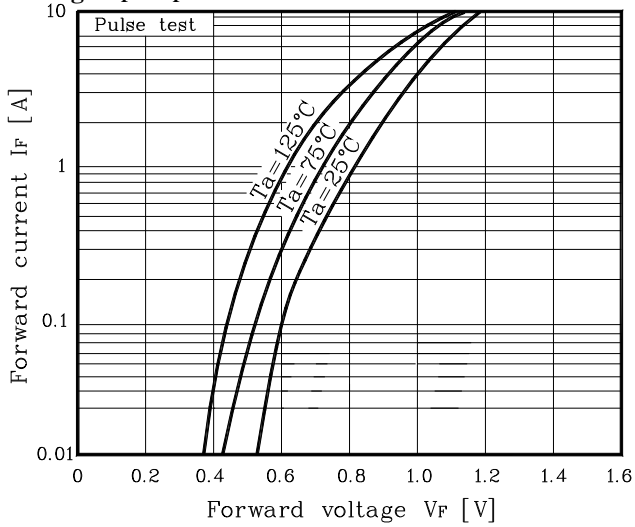
## Electrical Characteristics

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	
Reverse leakage current	$I_{RM}$	$V_R = V_{RRM}$	$T_J = 25^\circ C$	-	-	20	uA
			$T_J = 125^\circ C$	-	-	200	
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	

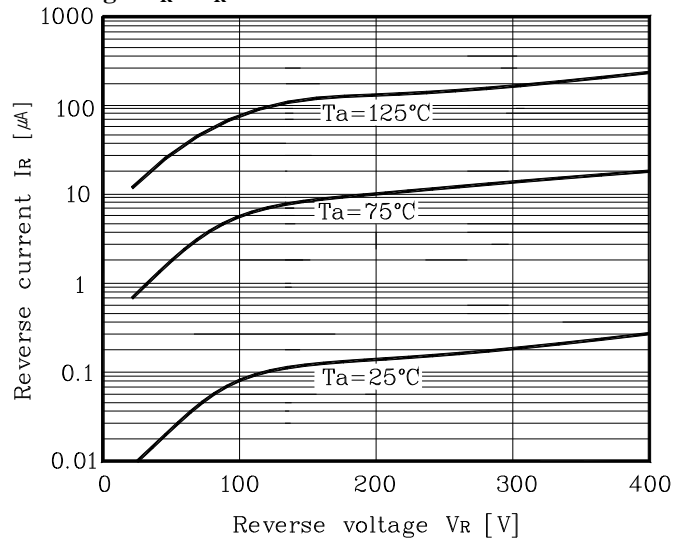
**Note :** (1) Pulse test :  $t_p \leq 380us$ , Duty cycle  $\leq 2\%$

## Electrical Characteristic Curves

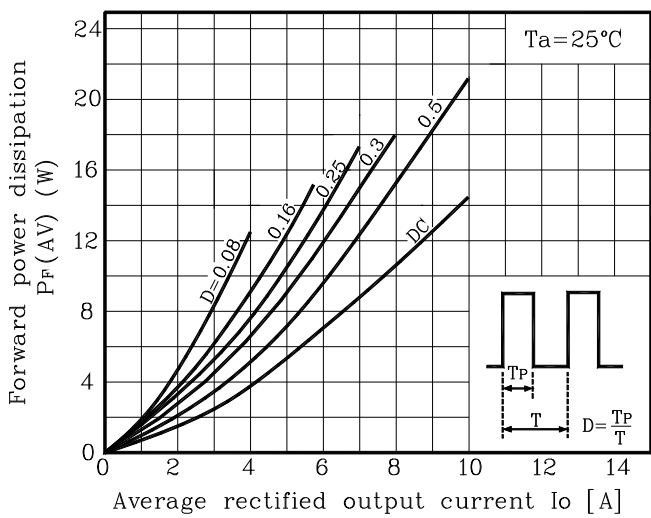
**Fig.1  $I_F - V_F$**



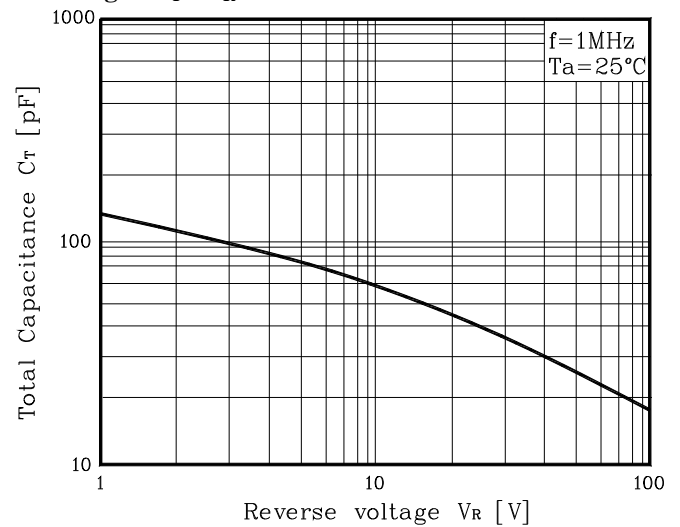
**Fig. 2  $I_R - V_R$**



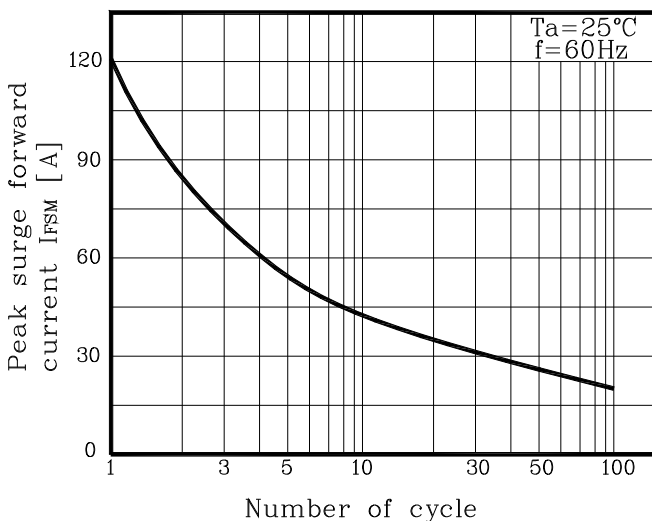
**Fig. 3  $P_F - I_O$**



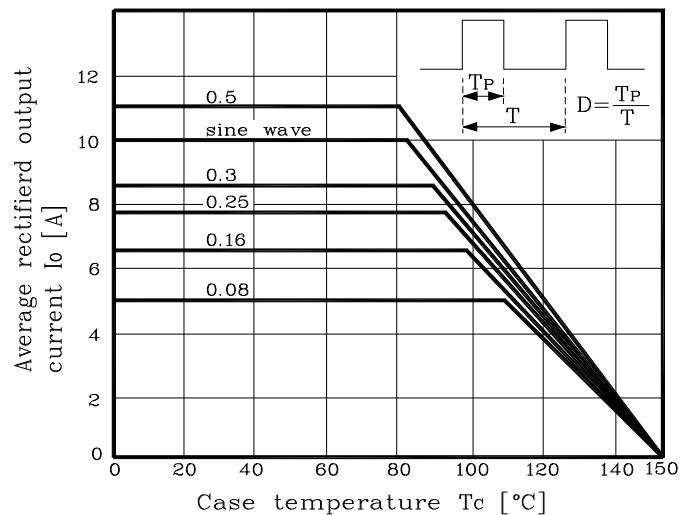
**Fig. 4  $C_T - V_R$**



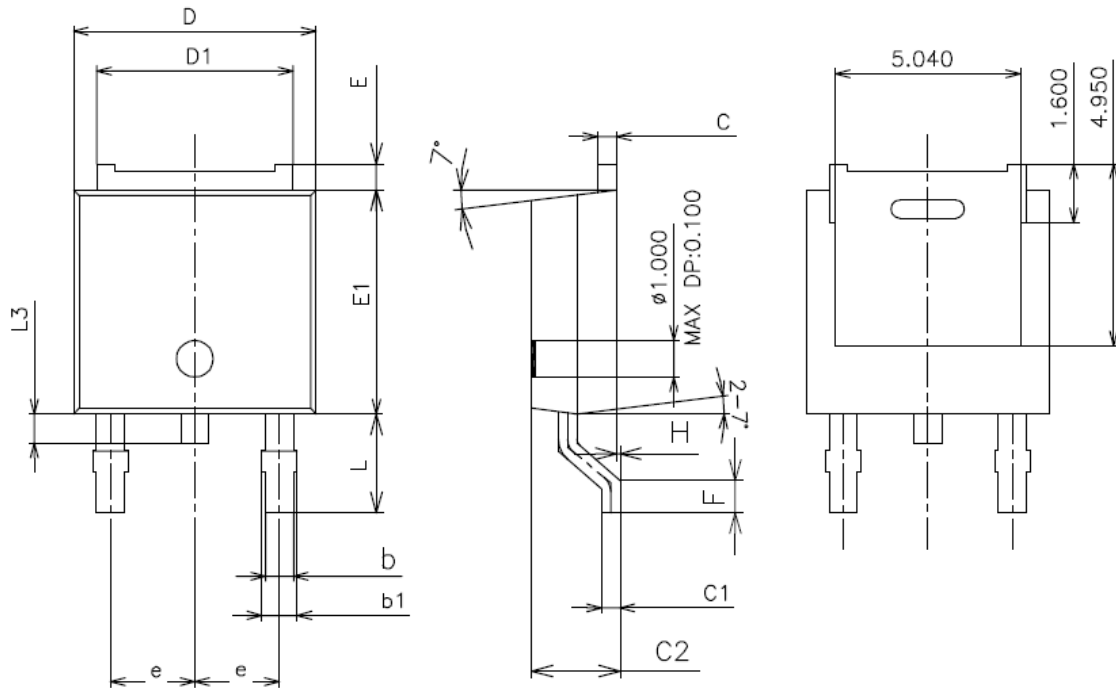
**Fig. 5  $I_{FSM} - \text{Number of cycle}$**



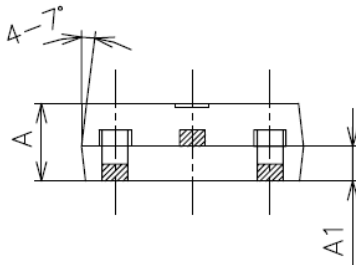
**Fig. 6  $I_O$  derating -  $T_c$**



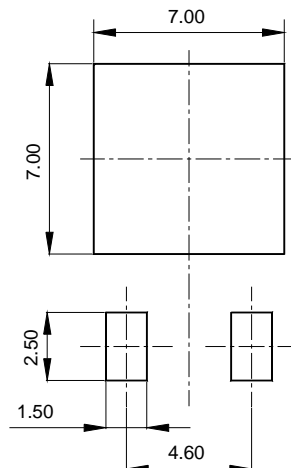
## Package Outline Dimension (Unit: mm)



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
D	6.40	6.60	6.80	
D1	5.14	5.34	5.54	
E	0.50	0.70	0.90	
E1	5.90	6.10	6.30	
A	2.20	2.30	2.40	
A1	0.87	1.07	1.27	
C	0.40	0.50	0.60	
C1	0.40	0.50	0.60	
C2	2.10	2.30	2.50	
L	2.50	2.70	2.90	
L3	0.60	0.80	1.00	
b	0.66	0.76	0.86	
b1	0.96 MAX			
e	2.10	2.30	2.50	
F	0.80 Min			
H	0	-	0.100	



## ※ Recommended Land Pattern (unit: mm)



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