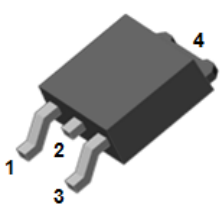
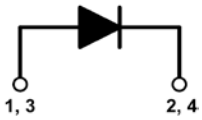
Ultrafast Recovery Power Rectifier

General Description

The SFN10A400DN is ideally as boost diode in discontinuous or critical mode power factor corrections. The planar structure and the platinum doper life time control guarantee the best overall performance, ruggedness reliability characteristics. The device is also intended for use as a freewheeling diode in power supplies and other power switching applications.





Pin Configuration

Pin 1, 3: Anode

Pin 2, 4: Cathode

TO-252

Features and Benefits

- Low forward drop voltage
- Ultrafast recovery time and high speed switching
- Full lead (Pb)-free device and RoHS compliant device

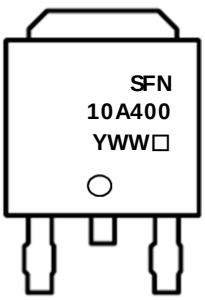
Applications

- Switching power supply
- Power inverters
- Power conversion system

Ordering Information

Part Number	Marking Code	Package	Packaging
SFN10A400DN	**SFN10A400**	**TO-252**	**Tape & Reel**

Marking Information



SFN10A400 = Specific Device Code

YWW = Year & Week Code Marking

-. Y = Year Code

-. WW = Week Code

-. □ = Factory Management Code

Absolute Maximum Ratings (Limiting values at 25°C, unless otherwise specified)

Characteristic	Symbol	Ratings	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	I_{FSM}	120	A
Storage temperature range	T_{stg}	-45 to +150	℃
Maximum operating junction temperature	T_J	150	

Thermal Characteristics

Characteristic	Symbol	Ratings	Unit
Maximum thermal resistance	$R_{th(j-c)}$	4.0	°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℃	-	1.15	1.4	V
Reverse leakage current	I_{RM} [2)]	$V_R = V_{RRM}$	T_J=25℃	-	-	5	uA
			T_J=125℃	-	-	200	
Reverse recovery time	t_{rr}	I_F = 1A, di/dt = -100 A/us		-	21	25	ns
Junction capacitance	C_j	V_R = 10V_{DC}, f=1MHz		-	43	-	pF

[1)] Pulse test: $t_p \leq 380us$, Duty cycle≤2%

[2)] Pulse test: $t_p \leq 20ms$, Duty cycle≤2%

Typical Electrical Characteristic Curves

Fig. 1) Typical Forward Characteristics

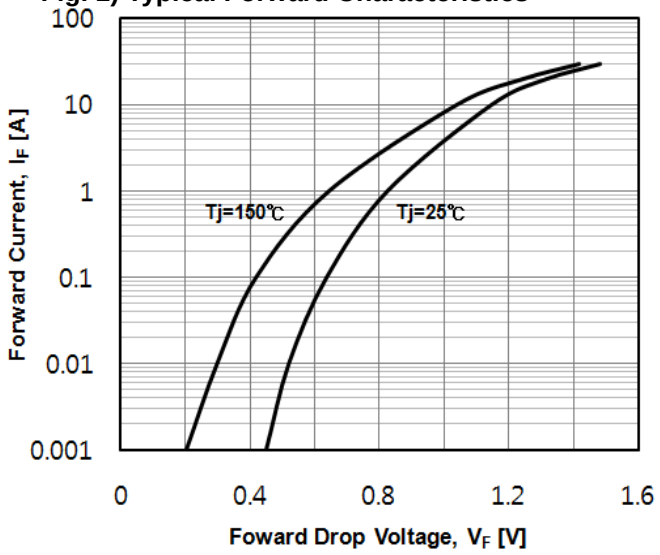


Fig. 2) Typical Reverse Characteristics

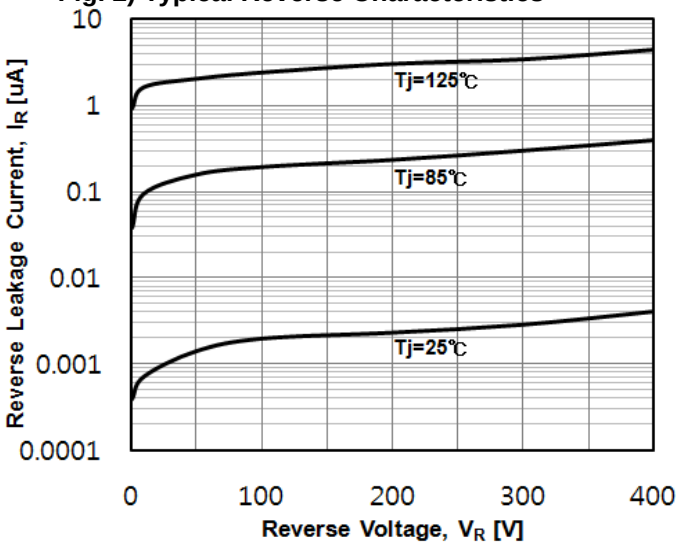


Fig. 3) Typical Junction Capacitance Characteristics

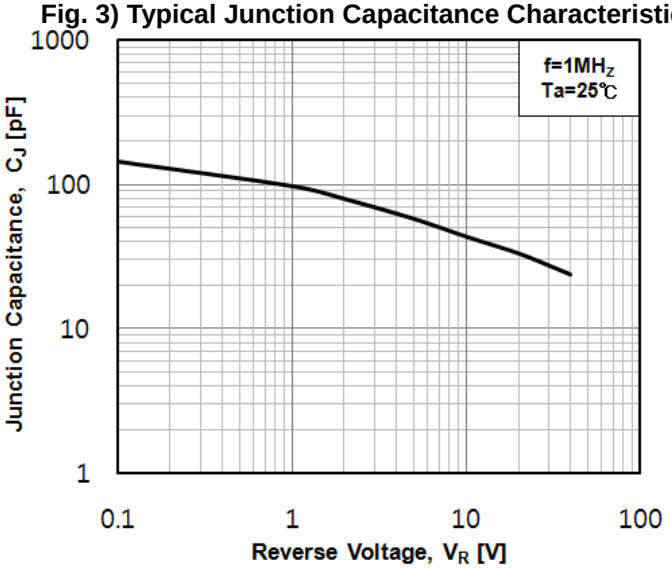


Fig. 4) Peak Forward Surge Current Characteristics

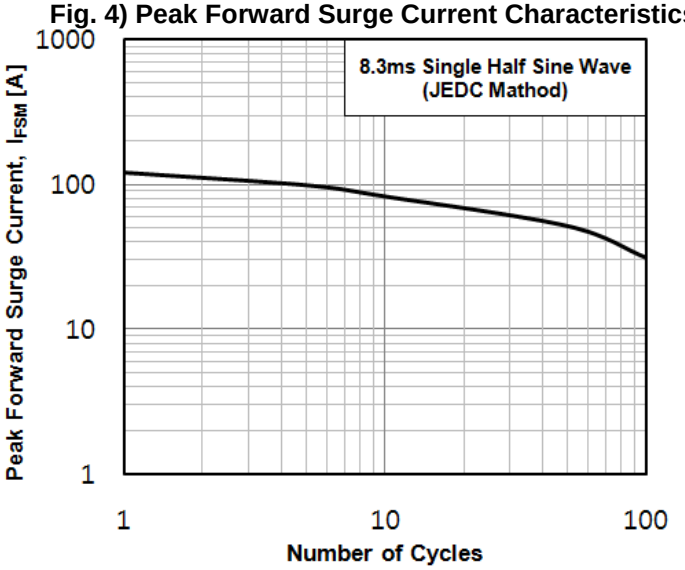


Fig. 5) Thermal Impedance Characteristics

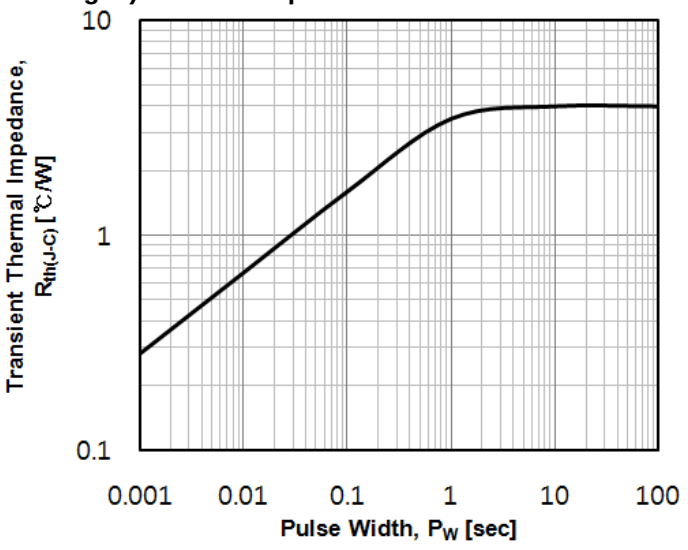
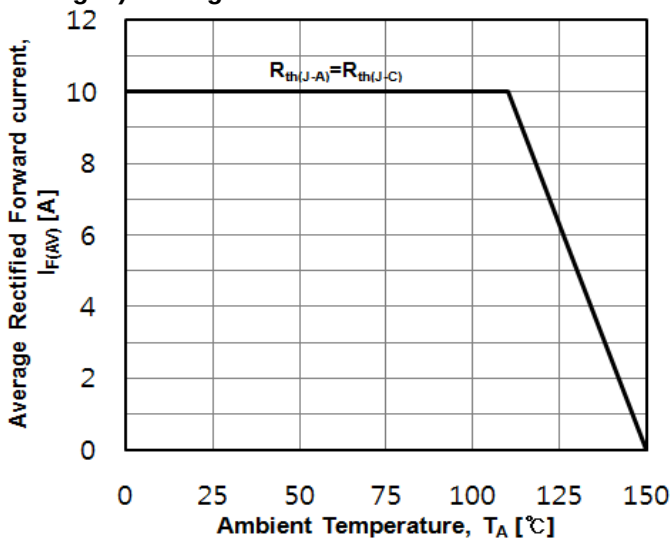
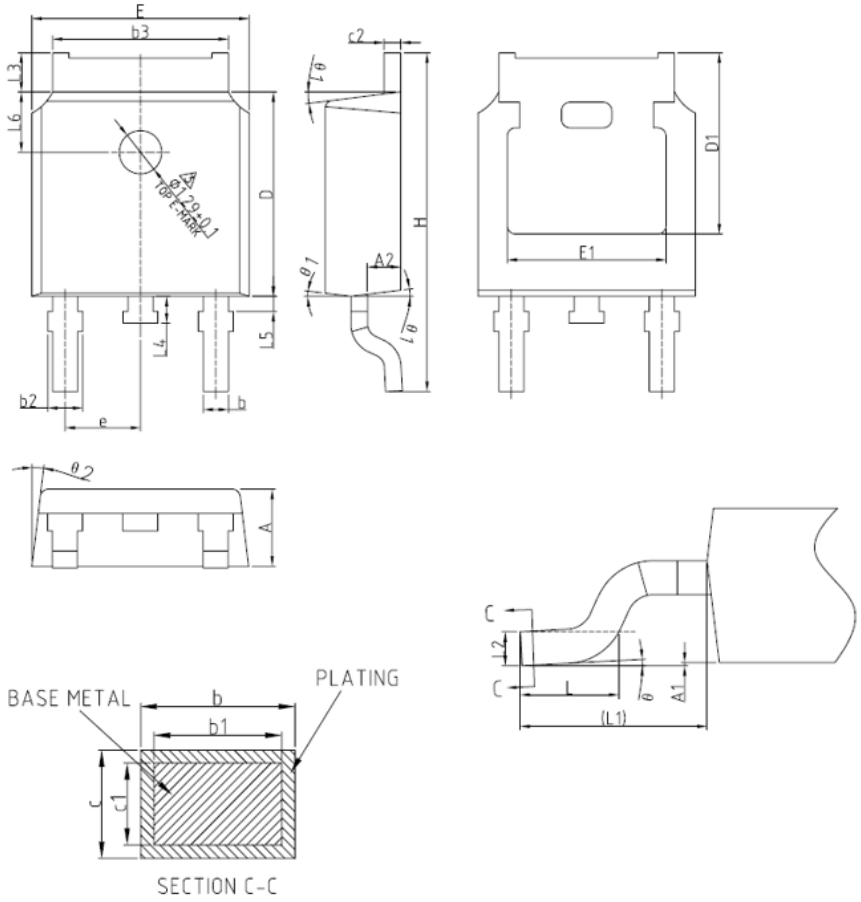


Fig. 6) Average Forward Current Characteristics



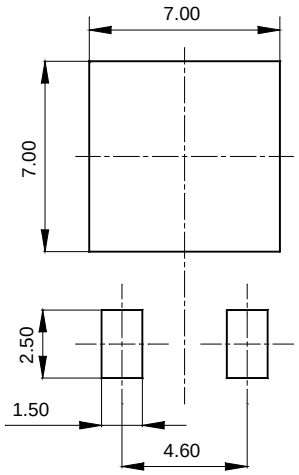
Package Outline Dimensions (Unit: mm)



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

	SYMBOL	MIN	NOM	MAX
	A	2.20	2.30	2.38
	A1	0	–	0.10
⚠	A2	0.90	1.01	1.10
	b	0.72	–	0.85
	b1	0.71	0.76	0.81
	b2	0.72	–	0.90
	b3	5.13	5.33	5.46
	c	0.47	–	0.60
	c1	0.46	0.51	0.56
	c2	0.47	–	0.60
	D	6.00	6.10	6.20
	D1	5.25	–	–
	E	6.50	6.60	6.70
	E1	4.70	–	–
	e	2.186	2.286	2.386
	H	9.80	10.10	10.40
	L	1.40	1.50	1.70
	L1		2.90REF	
	L2		0.51BSC	
	L3	0.90	–	1.25
	L4	0.60	0.80	1.00
	L5	0.15	–	0.75
	L6		1.80REF	
	θ	0°	–	8°
⚠	θ 1	5°	7°	9°
⚠	θ 2	5°	7°	9°

※ Recommended Land Pattern (Unit: mm)



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