

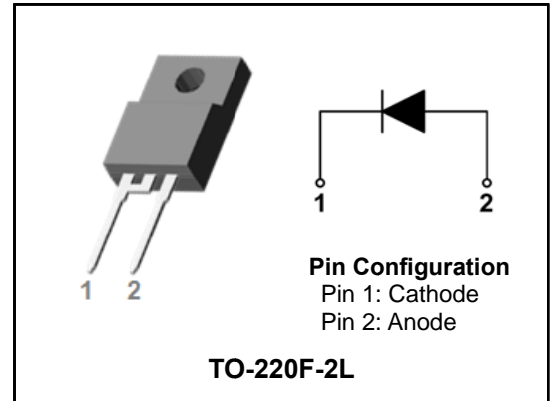
## 40V, 20A POWER SCHOTTKY RECTIFIER

### Features

- Low forward voltage drop
- Low power loss and High efficiency
- Low leakage current
- High surge capability
- Full lead (Pb)-free and RoHS compliant device

### Applications

- High efficiency SMPS
- Output rectification
- High frequency switching
- Freewheeling
- DC-DC converter systems



### Product Characteristics

$I_{F(AV)}$	<b>20A</b>
$V_{RRM}$	<b>40V</b>
$V_{FM}$ at 125°C	<b>0.52V</b>
$I_{FSM}$	<b>210A</b>

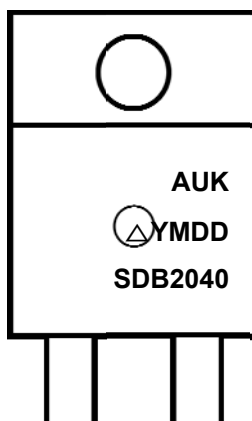
### Description

The SDB2040PH is suited for Switch Mode Power Supply and high frequency DC to DC converters. This device is especially intended for use in low voltage, high frequency inverters, free-wheeling and polarity protection applications.

### Ordering Information

Device	Marking Code	Package	Packaging
SDB2040PH	SDB2040	TO-220F-2L	Tube

### Marking Information



**AUK = Manufacture Logo**

**Δ = Control Code of Manufacture**

**YMDD = Date Code Marking**

- . Y = Year Code

- . M = Monthly Code

- . DD = Daily Code

**SDB2040 = 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	$V_{RRM}$ $V_{RWM}$ $V_R$	40	V
Maximum average forward rectified current	$I_{F(AV)}$	20	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	210	A
Storage temperature range	$T_{stg}$	-55°C to +150°C	°C
Maximum operating junction temperature	$T_J$	150	°C

## Thermal Characteristics

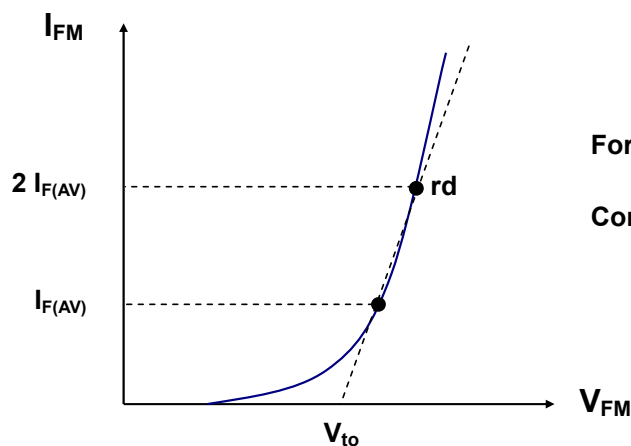
Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case	$R_{th(j-c)}$	4.5	°C/W

## Electrical Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Peak forward voltage drop	$V_{FM}^{(1)}$	$I_{FM} = 20A$	$T_j = 25^\circ C$	-	-	0.58	V
			$T_j = 125^\circ C$	-	0.49	0.52	V
Reverse leakage current	$I_{RM}^{(1)}$	$V_R = V_{RRM}$	$T_j = 25^\circ C$	-	-	1.5	mA
			$T_j = 125^\circ C$	-	-	200	mA

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

To evaluate the conduction losses use the following equation (Fig 4.):  $P_F = 0.31 \times I_{F(AV)} + 0.01 I_{F(RMS)}^2$

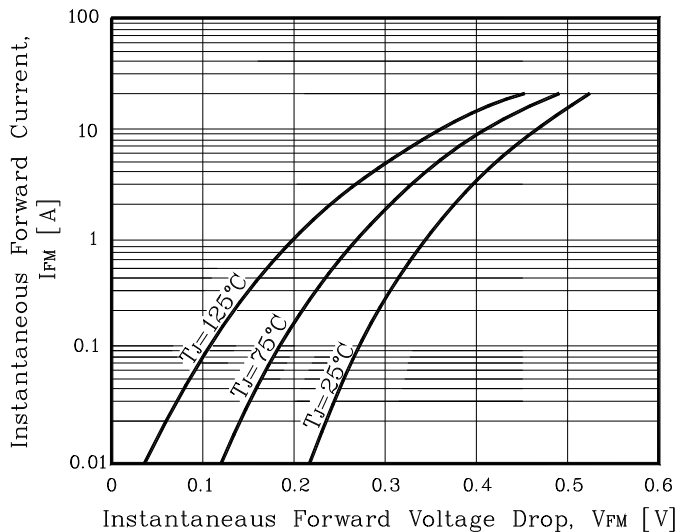


**Forward Voltage :  $V_{FM} = V_{to} + rd I_{FM}$**

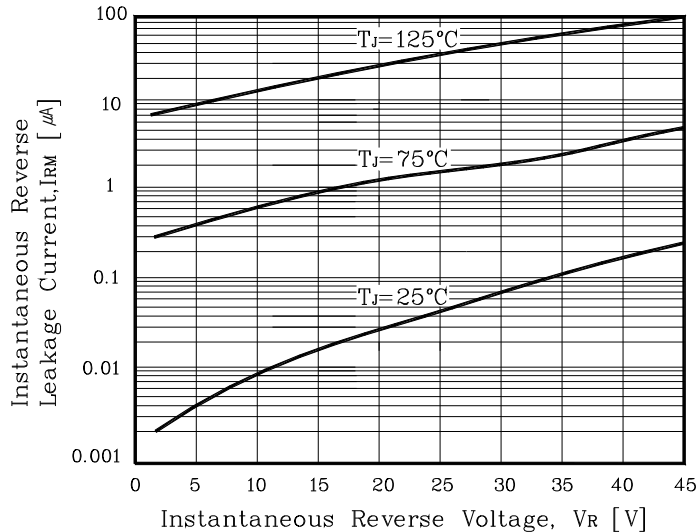
**Conduction Loss :  $P_F = V_{to} I_{F(AV)} + rd I_{F(RMS)}^2$**

## Rating and Characteristic Curves

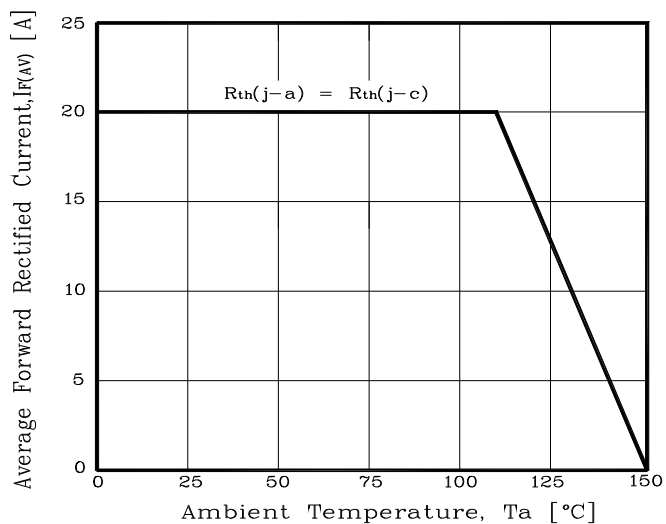
**Fig. 1) Typical Forward Characteristics**



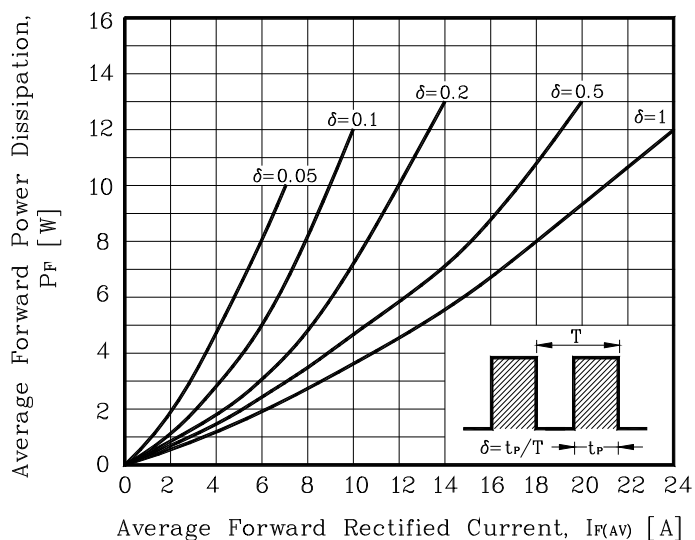
**Fig. 2) Typical Reverse Characteristics**



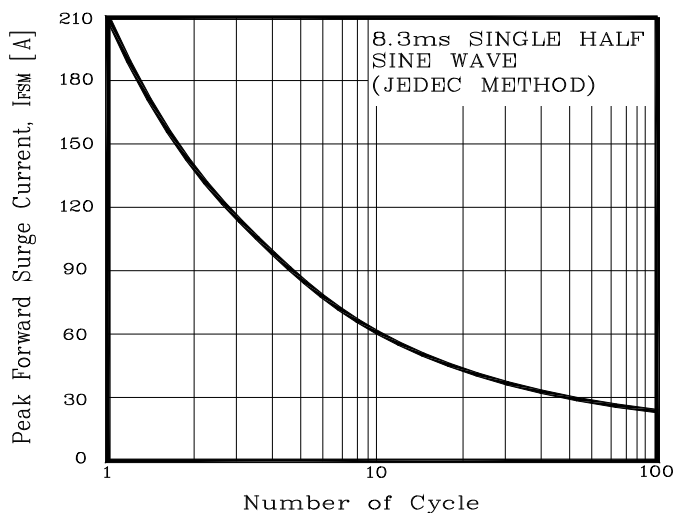
**Fig. 3) Maximum Forward Derivative Curve**



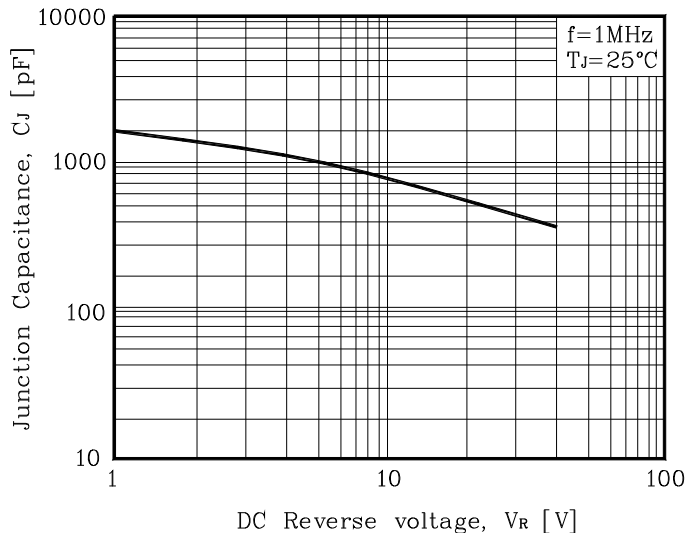
**Fig. 4) Forward Power Dissipation**



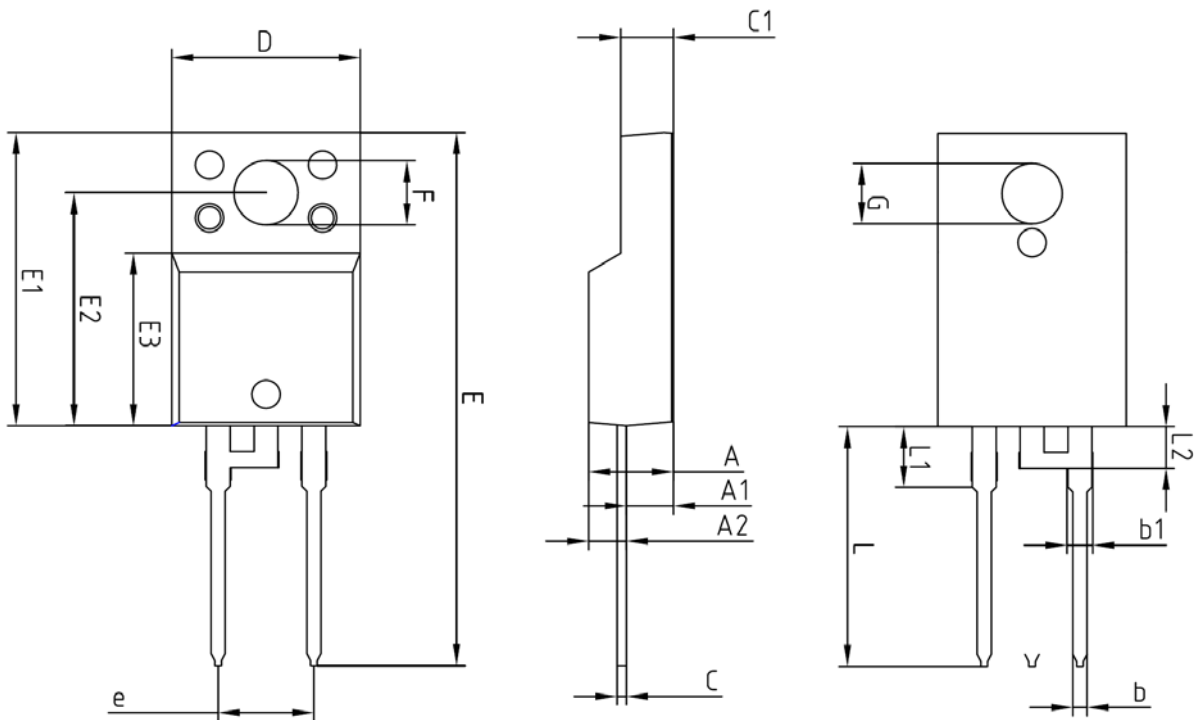
**Fig. 5) Maximum Non-Repetitive Peak Forward Surge Current**



**Fig. 6) Typical Junction Capacitance**



## Package Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	—	—	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	—	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	5.08 BSC			
L	12.40	—	13.00	
L1	3.46 BSC			
L2	2.21 BSC			

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