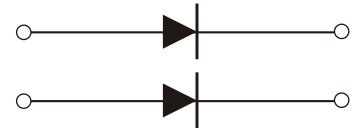


Ultrafast Recovery Diode Module

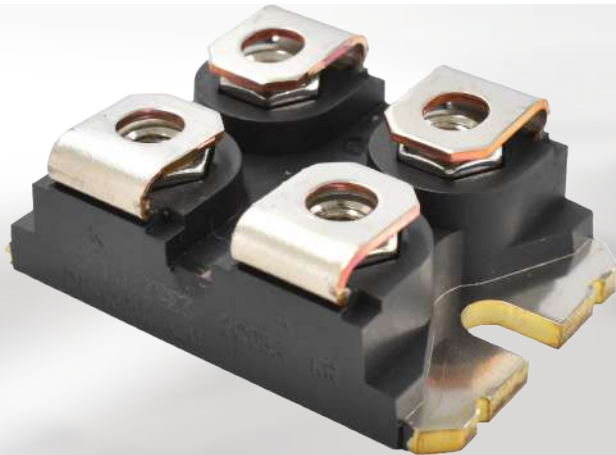
DBA200ZA20


($V_{R(DC)}=200V$, $I_{F(AV)}=100A \times 2$)



Applications

- ▶ Output rectification stage of welding machines.
- ▶ Switching mode power supplies (SMPS)
- ▶ Power supplies for induction heating.
- DC-DC Converters
- High frequency Inverters



UL Compliant 
UL File No. E76102

Features

■ Achieves Both Avalanche Resistance and Excellent Fast Recovery Performance

- Realizes excellent high-speed recovery characteristics through years of cultivated optimization technology (reverse recovery time t_{rr} : Typ 50ns).
- Secures sufficient avalanche resistance, making it ideal for replacing Schottky barrier diodes.

■ Compact and Highly Reliable Package

- Compact and highly reliable SOT-227 package.
- Can be directly mounted onto a heatsink.
- Withstand voltage of 2500V.
- Compliant with RoHS.

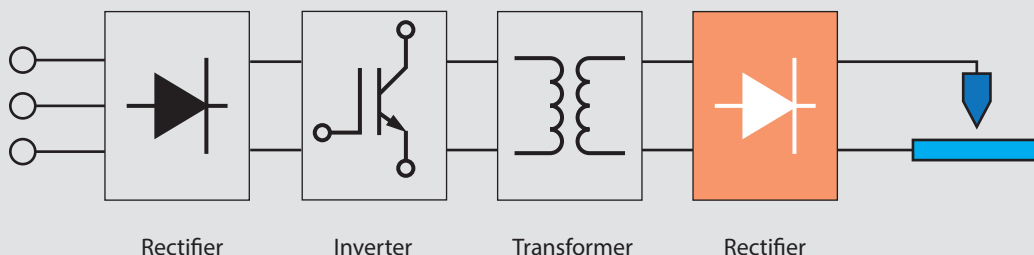
What is Avalanche Resistance?

When a semiconductor device is exposed to a reverse voltage that exceeds its rated limit, current flows due to avalanche breakdown. The extent of energy (or current) the device can withstand during such conditions is referred to as its avalanche resistance. Devices engineered with enhanced avalanche resistance are particularly characterized by their durability against destruction from avalanche currents, as compared to standard devices.

Usage Example

Welding Machine Configuration Example

Contributes to the miniaturization of mounted equipment through the combination with other devices in the SOT-227 package.



Maximum Ratings

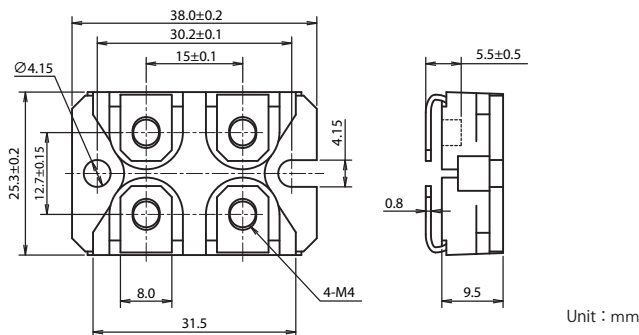
T_j = 25°C unless otherwise specified

Item	Symbol	Unit	Ratings	Conditions
Reverse DC voltage	V _{R(DC)}	V	200	
Average forward current	I _{F(AV)}	A	100	DC, T _c =98°C (per leg)
Surge forward current	I _{FSM}	A	1000/1100	50Hz 10ms/60Hz 8.3ms Sine wave, wave height, non-repeating
I _{2t} (for fusing)	I _t ²	A ² S	5000	50Hz 10ms/60Hz 8.3ms Sine wave
Isolation voltage	V _{ISO}	V	2500	AC Effective value 1 min
Avalanche current(single shot)	I _{AS}	A	40	V=100V, L=1.15mH
Shear head avalanche power(repetitive)	PARM	W	45000	T _p = 10 μs
Operating junction temperature	T _j	°C	-40 ~ +150	
Storage temperature	T _{stg}	°C	-40 ~ +150	
Tightening torque	Mounting (M4)	—	N·m	Recommended 1.0 to 1.4 (10 to 14)
	Main terminal (M4)	—	(kgf·cm)	Recommended 1.0 to 1.4 (10 to 14)
Mass	—	g	30	Typical value

Electrical Characteristics

T_j = 25°C unless otherwise specified

Item	Symbol	Unit	Ratings			Conditions	
			Smallest	Standard	Largest		
Repetitive peak reverse current	I _R	mA		0.5	5.0	T _j =T _{jmax} , V _R =V _{R(DC)} , (Per Leg)	
Forward voltage drop	V _F	V		1.00	1.15	I _F =100A, (Per Leg)	
Threshold voltage	V _(to)	V		0.84	0.96	T _j = 25 °C	
				0.62	0.70	T _j =T _{jmax}	
Slope resistance	r _t	mΩ		1.71	1.94	T _j = 25 °C	
				2.16	2.46	T _j =T _{jmax}	
Reverse recovery time	t _{rr}	ns		50	65	I _F =100A, V _R =100V, -di/dt=200A/μs, (Per Leg)	
Reverse recovery current (peak)	i _{rr}	A		5.5	7.5		
Reverse recovery charge	Q _{rr}	nC		160	210		
Thermal resistance	R _{th(j-c)}	°C/W				0.45	Junction to case (per leg)
							0.25
Interface thermal resistance	R _{th(c-f)}	°C/W		0.10			Case to fin (per module)



SOT-227 Package Lineup



IGBT	Fast recovery diode
GSA75AA120 75A 1200V	DBA200YA40 100A×2 400V
GSA100AA60 100A 600V	Soft recovery diode DBA200WA40/60 DBA200UA40/60 100A×2 400V/600V

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