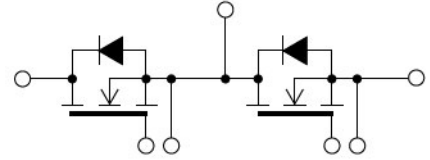


# SiC MOSFET Module (Half-Bridge)


「Techno Block」 series  
**FCA300AD170** (300A, 1700V)



## Applications

- ▶ Industrial Inverters
- ▶ Switching Power Supplies
- ▶ High Frequency Power Supplies etc.



**UL Compliant**   
 UL File No.E76102

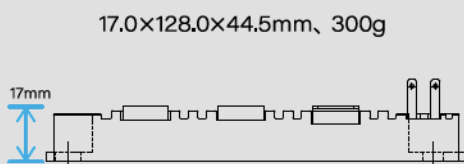
## Features

- Achieves 1700V for further optimized circuit applications
- Compact and highly reliable
- No additional FWD (Flywheel Diode) required
- High short-circuit resistance
- Low on-resistance even at high temperatures
- High noise immunity

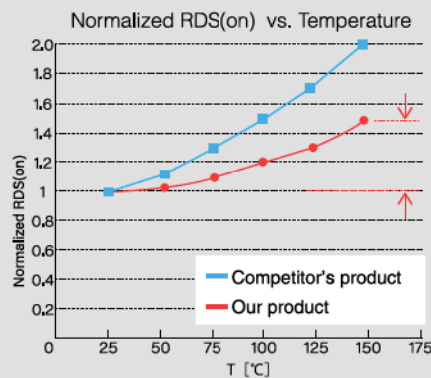
## Module integrating SanRex proprietary “Techno Block”<sup>1</sup> package and DioMOS technology

<sup>1</sup> SanRex original semiconductor package adopts transfer molding design with double side solder joint, achieving compact footprint and excellent heat dissipation

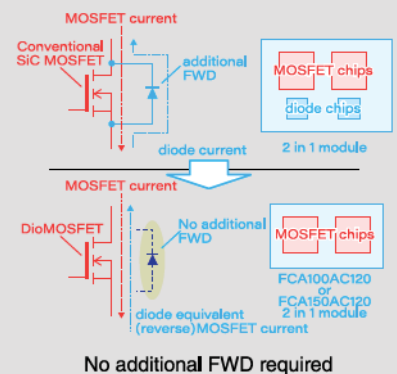
### Outline drawing



### Low on-state resistance even at high temp.



### Built in FWD



**Maximum Ratings**

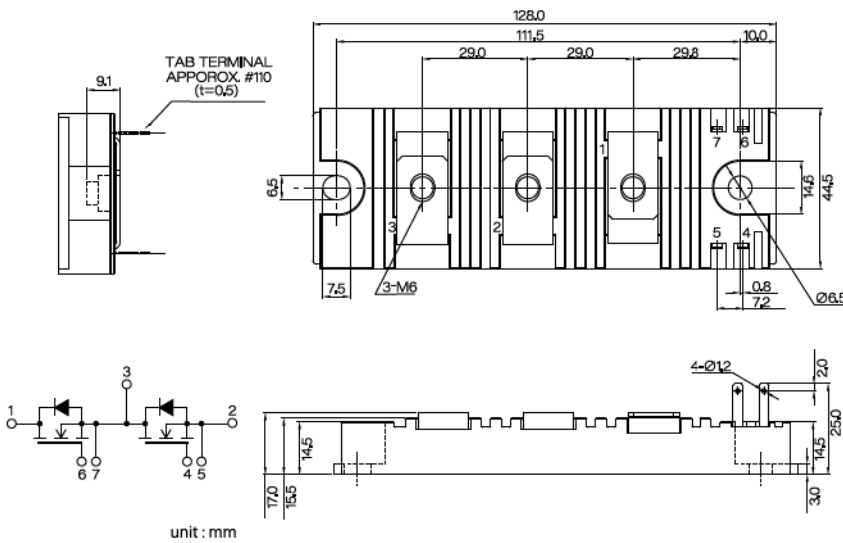
T<sub>J</sub>=25°C unless otherwise specified

Item	Symbol	Unit	Ratings	Conditions
Drain-Source Voltage	V <sub>DS</sub>	V	1700	
Drain Current	I <sub>D</sub>	A	300	V <sub>GS</sub> =20V, T <sub>c</sub> =90°C, DC
Total Allowable Loss	P <sub>tot</sub>	W	1750	T <sub>c</sub> =25°C
Junction Temperature	T <sub>J</sub>	°C	-40 to +150	
Dielectric Strength	V <sub>iso</sub>	V	4000	AC 60Hz 1min, Main Terminal to Case

**Electrical Characteristics**

T<sub>J</sub>=25°C unless otherwise specified

Item	Symbol	Unit	Ratings			Conditions
			Min.	Typ.	Max.	
Drain-Source On-Resistance	R <sub>DS(on)</sub>	mΩ		2.7	5.8	V <sub>GS</sub> =20V, I <sub>D</sub> =300A
				3.9	7.5	V <sub>GS</sub> =20V, I <sub>D</sub> =300A, T <sub>J</sub> =150°C
Drain Cutoff Current	I <sub>DSS</sub>	μA			600	V <sub>DS</sub> =1700V, V <sub>GS</sub> =0V
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V	3	4	5.2	V <sub>DS</sub> =10V, I <sub>D</sub> =9mA
Gate Leakage Current	I <sub>GSS</sub>	nA			600	V <sub>GS</sub> =20V, V <sub>DS</sub> =0V
Thermal Resistance	R <sub>th(j-c)</sub>	°C/W			0.07	Junction to Case(per Leg)

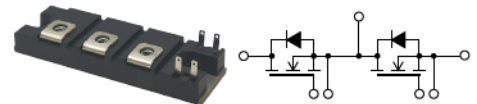


unit : mm

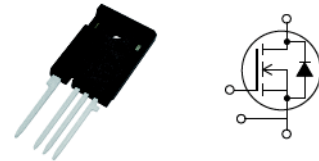
**SanRex SiC MOSFET family**

**SiC MOSFET**

Highly reliable 「Techno Block」 package  
FCA150AC120/FCA100AC120 (150A/100A, 1200V)



**FMG50AQ120N6 (50A, 1200V)**



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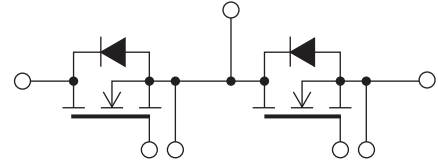


## SiC MOSFET Module (2in1)

「Techno Block」 series


FCA100AC120 (100A/1200V)

FCA150AC120 (150A/1200V)



### Applications

- ▶ Industrial Inverters
- ▶ Switching Regulator
- ▶ Various High-Frequency Power Supplies

UL Compliant   
UL File No.E76102

### Features

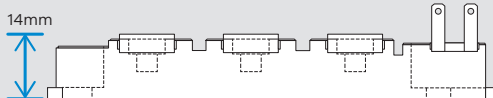
- Compact and highly reliable
- No additional FWD required
- High short-circuit resistance
- Low on-resistance at high temperatures
- High noise immunity

**Module integrating our proprietary “Techno Block”<sup>\*1</sup> package and DioMOS technology**

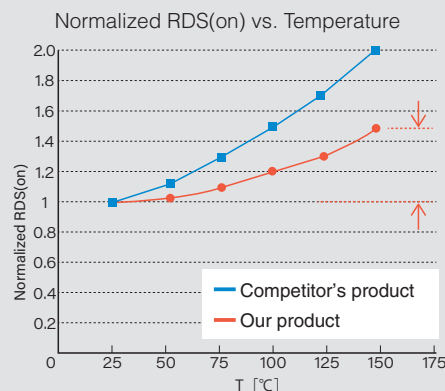
<sup>\*1</sup> Our original semiconductor package uses transfer molding and both side solder process, achieving small footprint and excellent heat dissipation

### Outline drawing

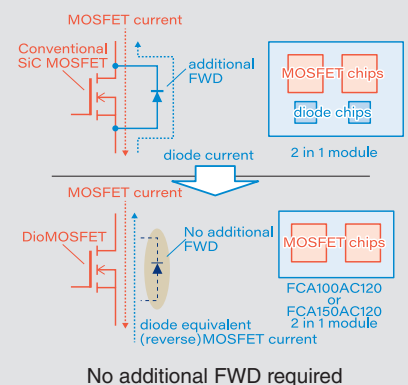
14.0×99.0×32.0mm、130g



### Low on-state resistivity even at high temp.



### Built in FWD



### Maximum Ratings

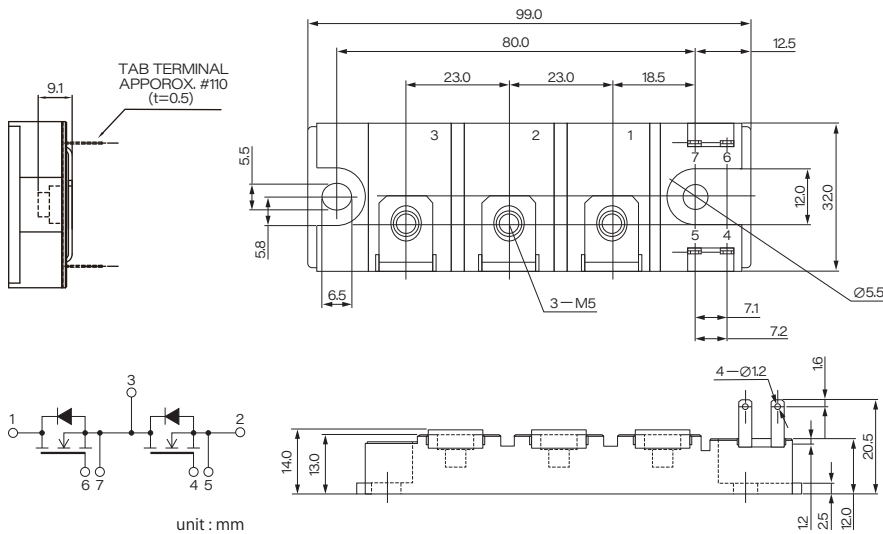
Tj=25°C unless otherwise specified

Item	Symbol	Unit	Ratings		Conditions	
			FCA100AC120	FCA150AC120	FCA100AC120	FCA150AC120
Drain-Source Voltage	V <sub>DS</sub>	V	1200			
Drain Current	I <sub>D</sub>	A	100	150	V <sub>GS</sub> =20V, T <sub>c</sub> =100°C, DC	V <sub>GS</sub> =20V, T <sub>c</sub> =90°C, DC
Total Allowable Loss	P <sub>tot</sub>	W	780	1135	T <sub>c</sub> =25°C	T <sub>c</sub> =25°C
Motion Joint Temperature	T <sub>j</sub>	°C	-40 ~ +150			
Dielectric Strength	V <sub>iso</sub>	V	2500		AC 60Hz 1min, Main Terminal to Case	

### Electrical Characteristics

Tj=25°C unless otherwise specified

Item	Symbol	Unit	Ratings						Conditions	
			Min.		Typ.		Max.		FCA100AC	FCA150AC
			FCA100AC	FCA150AC	FCA100AC	FCA150AC	FCA100AC	FCA150AC		
Drain-Source On-Resistance	R <sub>DS(on)</sub>	mΩ			6.8	4.1	14	9.3	V <sub>GS</sub> =20V, I <sub>D</sub> =100A	V <sub>GS</sub> =20V, I <sub>D</sub> =150A
					7.4	4.5	15	10	V <sub>GS</sub> =20V, I <sub>D</sub> =100A, T <sub>j</sub> =150°C	V <sub>GS</sub> =20V, I <sub>D</sub> =150A, T <sub>j</sub> =150°C
Drain Cutoff Current	I <sub>DSS</sub>	μA					200	300	V <sub>DS</sub> =1200V, V <sub>GS</sub> =0V	
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V	3	3	4	4	5.2	5.2	V <sub>DS</sub> =10V, I <sub>D</sub> =3mA	V <sub>DS</sub> =10V, I <sub>D</sub> =4.5mA
Gate Leakage Current	I <sub>GSS</sub>	nA					200	300	V <sub>GS</sub> =20V, V <sub>DS</sub> =0V	
Thermal Resistance	R <sub>th(j-c)</sub>	°C/W					0.16	0.11	Junction to Case(per Leg)	



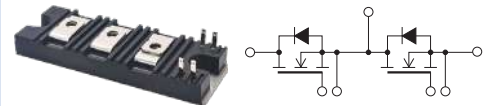
unit : mm

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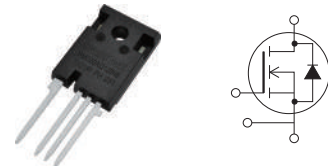
### Other Products

#### SiC MOSFET

Highly reliable 「Techno Block」 package  
**FCA300AD170 (300A, 1700V)**



#### FMG50AQ120N6 (50A, 1200V)



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