

## 1200V Silicon Carbide MOSFET

### Features

- Robust semiconductor material – 1200V SiC
- IGBT – compatible driving function
- Very good temperature related stability
- 75mΩ  $R_{DS\_ON}$  @  $V_{GS}=20V$
- High avalanche ruggedness
- JEDEC Qualified
- RoHS Compliant and Halogen Free

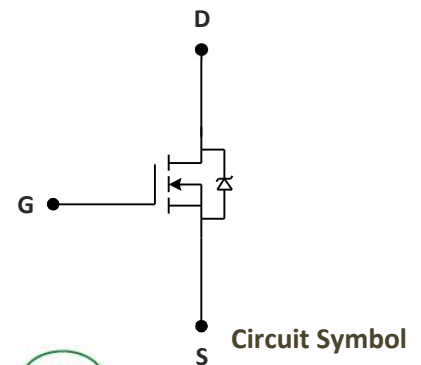
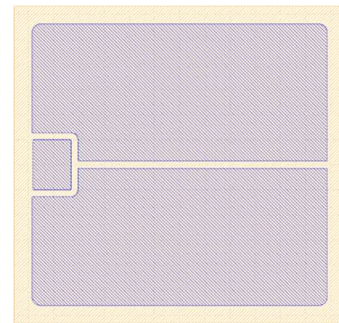
### Applications

- Solar inverters
- PFC
- Motor Drives
- High Voltage DC-DC Converter
- Induction Heating and Welding
- EV Charging
- Switch mode power supplies, UPS

### Ordering Information

Part Number	Die Size (mm)
PSMA1PVA2R75W	2.8*2.8

$BV_{DSS}$	$R_{DS\_ON}$	$I_D$
1200V	75mΩ	35A



### Absolute Maximum Ratings

$T_J=25^{\circ}C$ , unless otherwise specified.

Symbol	Parameter	Rating
$V_{DSS}$	Drain-to-Source Voltage	1200V
$V_{GSS}$	Gate-to-Source Voltage	-10V/25V
$V_{GSS\_OP}$	Recommended Operational	-5V/20V
$I_D$	Continuous Drain Current @ $V_{GS}=20V$	35A
	Continuous Drain Current @ $V_{GS}=20V$ ( $T_C=100^{\circ}C$ )	28A
$I_{DP}$	300us Pulsed Drain Current @ $V_{GS}=20V$	93A
$I_S$	Diode Continuous Forward Current	35A

These are stress ratings only and functional operation is not implied. Exposure to absolute maximum ratings for prolonged time periods may affect device reliability.

## Electrical Specifications

$T_J=25^{\circ}\text{C}$ , unless otherwise specified.

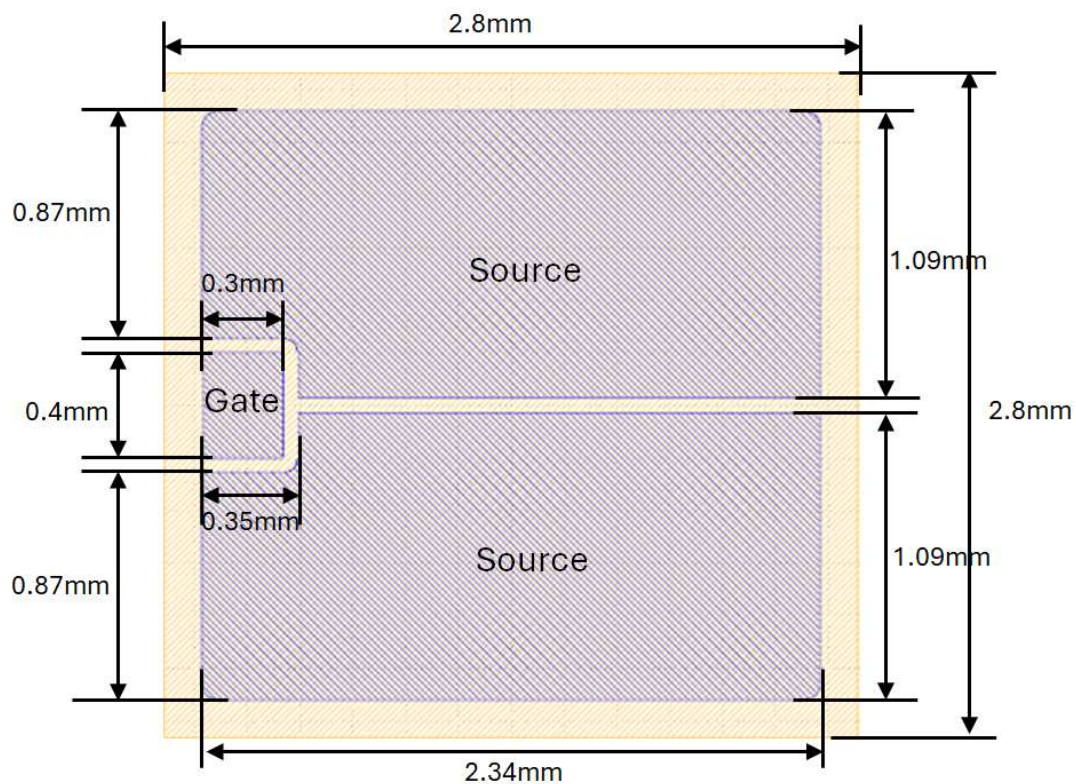
Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
DC Characteristics						
BV <sub>DSS</sub>	Drain-to-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =1mA	1200			V
I <sub>DSS</sub>	Drain-to-Source Leakage Current	V <sub>DS</sub> =1200V, V <sub>GS</sub> =0V		0.1	10	uA
		V <sub>DS</sub> =1200V, V <sub>GS</sub> =0V (T <sub>J</sub> =175°C)		1		
I <sub>GSS</sub>	Gate-to-Source Leakage Current	V <sub>GS</sub> =20V, V <sub>DS</sub> =0V		10	100	nA
		V <sub>GS</sub> =-5V, V <sub>DS</sub> =0V		-10	-100	
R <sub>DS_ON</sub>	Static Drain-to-Source On-Resistance	V <sub>GS</sub> =20V, I <sub>D</sub> =35.6A		75	95	mΩ
		V <sub>GS</sub> =20V, I <sub>D</sub> =17.8A		72	90	
		V <sub>GS</sub> =20V, I <sub>D</sub> =20A (T <sub>J</sub> =175°C)	-	120	-	
V <sub>GS_TH_</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =17.8mA	2	3.0	4	V
		V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =17.8mA (T <sub>J</sub> =175°C)	-	2.1	-	
Body Diode Characteristics						
V <sub>SD</sub>	Diode Forward Voltage	I <sub>F</sub> =35.6A, V <sub>GS</sub> =-5V		4.0		V

1. Pulse test; pulse width $\leq 300\mu s$ , duty cycles $\leq 2\%$ .
2. All voltages are with respect to ground.
3. The  $R_{ds\_on}$  characteristics were tested with the parts assembled in To-247-3L package

## Mechanical Parameters

Parameter	Typical Value	Unit
Die Dimensions (L x W)	2.8*2.8	mm
Gate Pad Dimensions (L x W)	293*398	μm
Die Thickness	175 ± 20	μm
Top Side Source metallization (AlCu)	4.0	μm
Top Side Gate metallization (AlCu)	4.0	μm
Bottom Drain metallization (Ti/Ni/Ag)	0.1/0.3/1	μm
Cut line	100	μm

## Chip Dimensions



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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.