

M2D-1200-0017

Silicon Carbide Power MOSFET Bare Die

N-Channel Enhancement Mode

Features

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness
- Halogen Free, RoHS Compliant

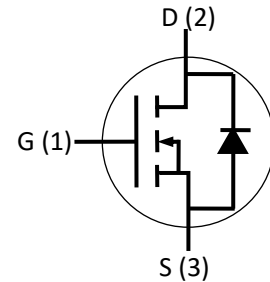
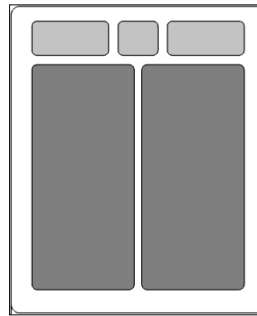
Benefits

- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

Applications

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Battery Chargers
- Motor Drives

Package



Part Number	Die Size(mm)
M2D-1200-0017	4.46*5.37

Maximum Ratings ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{DSmax}	Drain - Source Voltage	1200	V	$V_{GS}=0V, I_D=100\mu A$	
V_{GSmax}	Gate - Source Voltage	-8/+25	V	Absolute maximum values	
V_{GSop}	Gate - Source Voltage	-5/+20	V	Recommended operational values	
I_D	Continuous Drain Current	97 85	A	$V_{GS}=18V, T_c=25^\circ\text{C}$ $V_{GS}=18V, T_c=100^\circ\text{C}$	
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +150	$^\circ\text{C}$		

Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	1200			V	$V_{GS}=0V, I_D=100\mu A$	
$V_{GS(th)}$	Gate Threshold Voltage	2.0	2.5	4.0	V	$V_{GS}=V_{DS}, I_{DS}=25mA, T_C=25^\circ C$	
I_{DSS}	Zero Gate Voltage Drain Current		8	100	μA	$V_{DS}=1200V, V_{GS}=0V$	
I_{GSS+}	Gate-Source Leakage Current		20	150	nA	$V_{GS}=18V, V_{DS}=0V$	
$R_{DS(on)}$	Drain-Source on-state Resistance		17	23	m Ω	$V_{GS}=18V, I_D=60A, T_C=25^\circ C$	
			29			$V_{GS}=18V, I_D=60A, T_C=150^\circ C$	

Reverse Diode Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_{SD}	Diode Forward Voltage	TBA		V	$V_{GS} = -5V, I_{SD} = 35 A, T_J = 25^\circ C$	
		TBA		V	$V_{GS} = -5V, I_{SD} = 35 A, T_J = 150^\circ C$	
I_S	Continuous Diode Forward Current		95	A	$T_C = 25^\circ C$	

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	4.46 x 5.37	mm
Kelvin Source Pad Size	1.34x0.6(double)	mm
Souce Pad Size	1.78 x 3.9(double)	mm
Gate Pad Size	0.7 x 0.6	mm
Thickness	180 \pm 10%	μm
Wafer Size	150	mm
Top Side Kelvin Source Metaliation(AlCu)	4.0	μm
Top Side Source Metalization	AlCu(4 μm)+Ni/Ag(1 μm)	μm
Top Side Gate Metalization(AlCu)	4.0	μm
Bottom Side Metalization (Ni/Ag)	1.0	μm

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