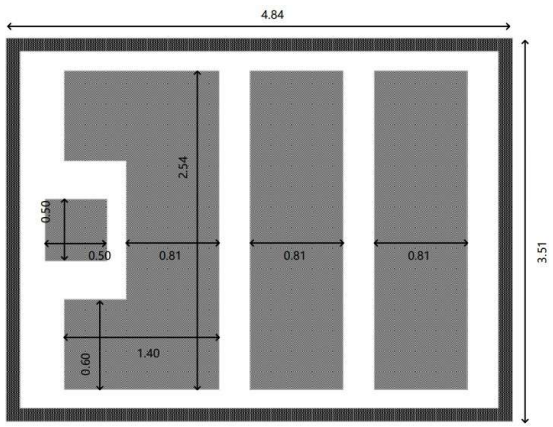
Wafer Specification Sheet HM120C40W

Silicon Carbide Metal-Oxide-Semiconductor Field-Effect Transistor 1200V N-Channel SiC MOSFET

Bonding Pad Information	Chip Information		
 unit: mm	Die Size (with Scribe Line)		4,840μm x 3,510μm
	Gate Pad Size		500μm x 500μm
	Source Pad Size		Full metalized surface of source region
	Scribe Line Size		80μm
	Wafer Size		6inches
	Wafer Thickness		175±15um
	Metallization	Front Side	Al/Cu : 4μm
		Back Side	Ti/Ni/Ag : 2.5μm
	Recommended Wire Bonding		
	Gate Pad		5.0 mil x 1 (Al wire)
	Source Pad		20 mil x 3 (Al wire)
	Gross Die		894ea

Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	1200	V
Gate-Source Voltage	$V_{GS,op}$	-5/+20	V
Drain Current-Continuous @ T_C=25°C	I_D	75	A
Drain Current-Pulsed	I_{DM}	120	A
Operating Junction Temperature Range	T_J	-55 to +175	°C

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTIC						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=100uA	1200	-	-	V
Drain-Source Leakage Current	I_{DSS}	V_{GS}=0V, V_{DS}=1200V	-	1	100	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=20V, V_{DS}=0V	-	10	250	nA
ON CHARACTERISTIC						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=5mA	1.8	2.8	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=20V, I_D=35A	-	40	52	mΩ
		V_{GS}=18V, I_D=35A	-	43	56	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=1000V, f=1MHz, V_{AC}=25mV	-	2534	-	pF
Output Capacitance	C_{oss}		-	110	-	
Reverse Transfer Capacitance	C_{rss}		-	26	-	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=-5V, I_S=20A	-	4.9	-	V

NOTE:

1. **The data tested by pulsed, pulse with ≦ 300us, duty cycle ≦ 2%.**
2. **$R_{DS(ON)}$ calculated by TO-247-3L package type.**