



SiC MOSFET

SM1222G2

$V_{DSS} = 1200\text{ V}$

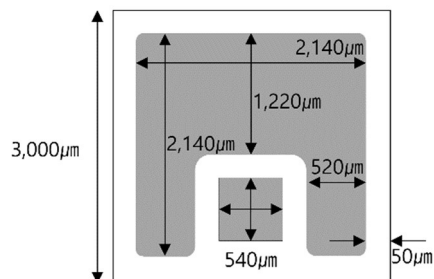
$I_D = 22\text{ A}$

$R_{DS} = 80\text{ m}\Omega$

Features

Silicon Carbide MOSFET
High-switching Speed

Die Structure & Pattern Diagram



Applications

Switch Mode Power Supplies
DC-DC
Solar Inverters
UPS

Chip Information

Wafer size 6 inch
Chip size 3,000 * 3,000 μm
Chip thickness 350 μm
Scribe line width 100 μm
Gate Pad diameter 540 * 540 μm
Top metallization AlCu
Back metallization Ti-Ni-Ag (for Solder)
Chip quantity 1,617 pcs/wafer

Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Conditions	Limit	Unit
Drain – Source voltage	V_{DSS}		1200	V
Drain current (DC)	I_D		22	A
Gate – Source voltage	V_{GSS}		-6 to +22	V
Junction temperature	T_j		175	°C
Storage temperature	T_{stg}		-55 to +175	°C

Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain – Source breakdown voltage	V_{DSS}	$V_{GS} = 0V, I_D = 1mA$	1200	-	-	V
Zero Gate voltage Drain current	I_{DSS}	$V_{GS} = 0V, V_{DS} = 1200V$	-	1	10	μA
Gate – Source Leakage current	I_{GSS+}	$V_{GS} = +22V, V_{DS} = 0V$	-	-	100	nA
	I_{GSS-}	$V_{GS} = -6V, V_{DS} = 0V$	-	-	-100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 2.5mA$	1.6	2.8	4.0	V
Drain – Source on resistance	$R_{DS(on)}$	$V_{GS} = 18V, I_D = 7A$	-	80	208	mΩ

Body Diode Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 7A$	-	3.6	-	V



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Electrical characteristic curves

Fig.1 Typical Output Characteristics

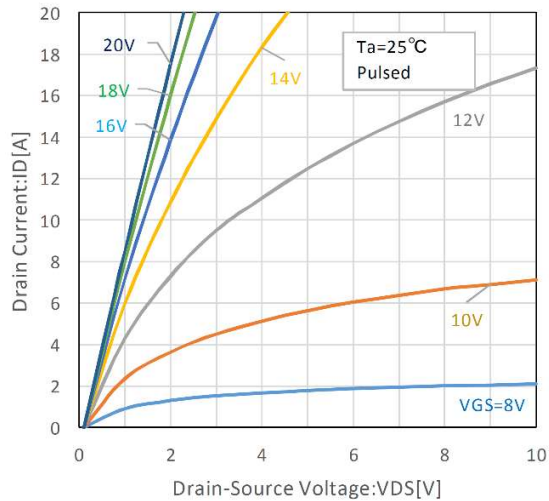


Fig.2 Typical Output Characteristics

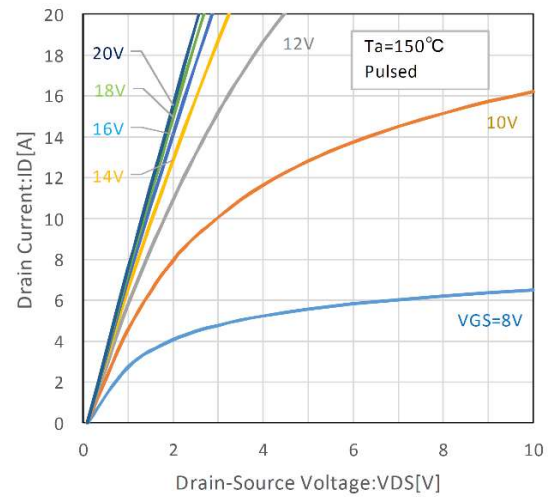


Fig.3 Typical Transfer Characteristics

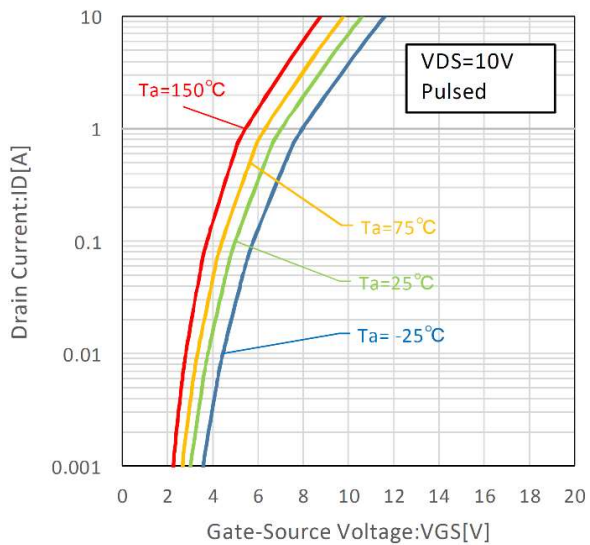
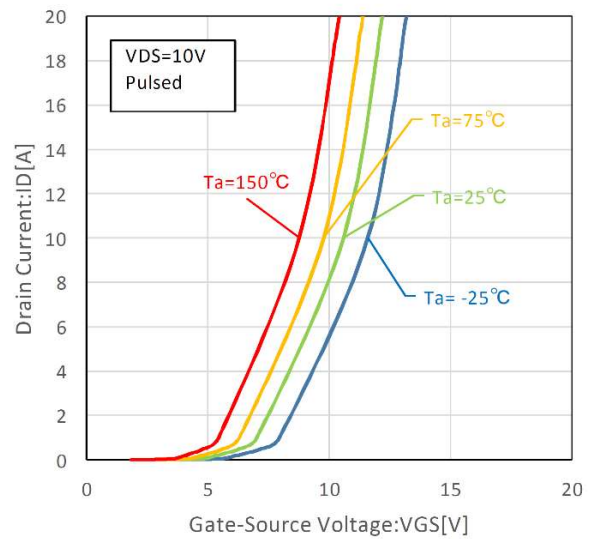


Fig.4 Typical Transfer Characteristics





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Notes

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3. Since the products are in wafer form, the values in this document are for reference only.
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