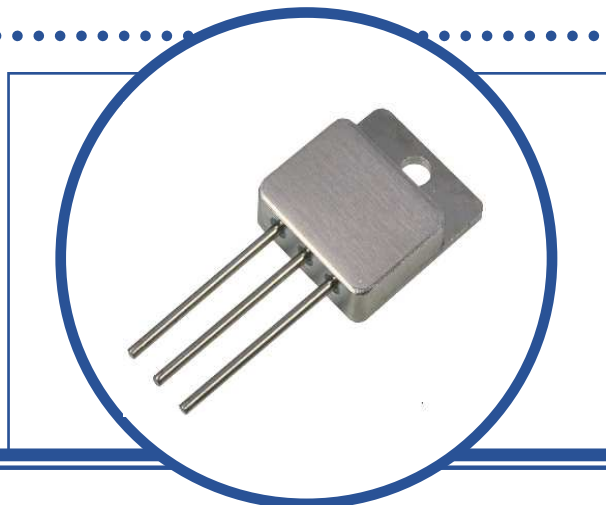


NORMALLY-OFF SILICON CARBIDE POWER JFET

SML100M12MSF

- RDS(on)max of 0.150Ω
- High Temperature Operation $T_j = 200^\circ\text{C}$
- Low Gate Charge and Intrinsic Capacitance
- Positive Temperature Coefficient and Temperature Independent Switching Behaviour



APPLICATIONS

- SMPS
- Motor Drive
- UPS
- Induction Heating

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{DS}	Drain-Source Blocking Voltage	1200 V
$R_{DS(on)max}$	Drain-Source On-resistance	0.15 Ω
I_D	Available Drain Current	24 A
I_{DM}	Pulsed Drain Current	34 A
P_D	Power Dissipation	70 W
V_{GS}	DC Gate-Source Voltage	-15 to +3 V
T_J	Operating Temperature	-55 to +200 °C
T_{Jstg}	Storage Temperature	-55 to +225 °C

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case, $T_C = 25^\circ\text{C}$		1.8	2.5	°C/W

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NORMALLY-OFF SILICON CARBIDE POWER JFET SML100M12MSF

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
B _V D _{SS}	Drain-Source Blocking Voltage	V _{GS} = 0V, I _D = 1.0mA	1200	-	-	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 1200V, V _{GS} = 0V	-	-	1.0	mA
		V _{DS} = 1200V, V _{GS} = -5V	-	0.11	-	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = 1.0V, I _D = 34mA	0.70	1.00	1.25	V
I _{GSS}	Gate-Source Leakage Current	V _{GS} = 2.4V	-	0.25	1.5	mA
		V _{GS} = -15V	-	0.1	1.5	
R _{DS(on)} ⁽¹⁾	Drain-Source On-resistance	I _D = 13A, V _{GS} = 3V, T _J = 25°C	-	0.09	0.15	Ω
		I _D = 13A, V _{GS} = 3V, T _J = 175°C	-	0.29	-	
Q _g	Total Gate Charge	V _{DS} = 600V, I _D = 13A, V _{GS} = 0V to +3V	-	28	-	nC
Q _{gs}	Gate-Source Charge		-	9.3	-	
t _{on}	Turn-on Delay (Resistive Load)	V _{DS} = 600V, I _D = 13A, C _{BP} = 33nF, R _{CL} = 110Ω	-	20	-	ns
t _{off}	Turn-off Delay (Resistive Load)		-	30	-	
t _r	Rise time (Resistive Load)		-	70	-	
C _{iss}	Input Capacitance	V _{DS} = 100V	-	642	-	pF
C _{oss}	Output Capacitance		-	69	-	
C _{rss}	Reverse Transfer Capacitance		-	68	-	

Notes

(1) Pulse Width ≤ 300us, δ ≤ 2%

