GR40MT12J

1200 V SiC MOSFET

Silicon Carbide Power MOSFET

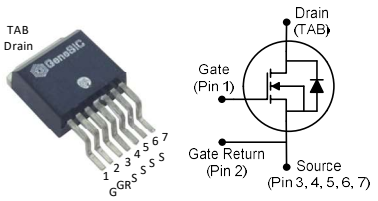
N-Channel Enhancement Mode

V_{DS}	=	1200 V
I_D @25 °C	=	62 A
$R_{DS(ON)}$	=	40 mΩ

Features

- Optimized package with separate driver source pin
- 150 °C Maximum Operating Temperature
- High blocking voltage with low On-resistance
- Low output capacitance and gate charge
- Normally-OFF operation at all temperatures
- Halogen free, RoHS complaint

Package



TO-263-7L

Advantages

- Reduced switching losses and minimum gate ringing
- High system efficiency
- Increased power density
- Increased system switching frequency

Applications

- EV Battery Chargers
- Switched-Mode Power Supply (SMPS)
- Solar Inverters
- Renewable Energy
- Motor Drives
- Induction Heating
- Uninterruptible Power Supply (UPS)

Maximum Ratings at T_C = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Drain - Source Voltage	V_{DSmax}	V_{GS} = 0 V, I_D = 10 µA	1200	V
Gate - Source Voltage (dynamic) [1]	V_{GSmax}	AC (f > 1 Hz)	-10/+25	V
Gate - Source Voltage (static) [2]	V_{GSop}	Static	-5/+20	V
Operating Junction and Storage Temperature	T_J, T_{stg}		-55 to +150	°C

Electrical Characteristics at T_C = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typical	Max.	
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 10 µA	1200			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 5 mA V_{DS} = V_{GS}, I_D = 5 mA , T_J = 150 °C		2.6 1.8		V
Drain - Source Leakage Current	I_{DSS}	V_{DS} = 1200 V, V_{GS} = 0 V V_{DS} = 1200 V, V_{GS} = 0 V, T_J = 150 °C		0.5 5		µA
Gate - Source Leakage Current	I_{GSS}	V_{GS} = 20 V, V_{DS} = 0 V			100	nA
Drain - Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 20 V, I_D = 40 A V_{GS} = 20 V, I_D = 40 A, T_J = 150 °C		40 60		mΩ
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = 1000 V f = 1 MHz V_{AC} = 25 mV		1800		pF
Output Capacitance	C_{oss}			140		pF
Reverse Transfer Capacitance	C_{rss}			8		pF

Reverse Diode Characteristics at T_C = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typical	Max.	
Diode Forward Voltage	V_{SD}	V_{GS} = -4 V, I_D = 20 A		3.3		V
		V_{GS} = -4 V, I_D = 20 A, T_J = 150 °C		3.1		
Continuous Diode Forward Current	I_S	V_{GS} = -4 V			60	A