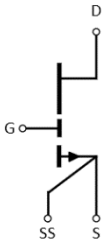
Features

- 650V
- High Current: 120A and 240A
- High Power: up to 95kW
- Easy to use package
- Parallel E-HEMT demonstration
- Island Technology®
- Zero Reverse Recovery current
- High switching frequency
- High Efficiency
- Source sense
- Size 32.3mm x 21.6mm

Top

Bottom



Circuit Symbol

Description

The GSM-065-xxx evaluation modules are a convenient way for designers to evaluate GaN Systems' newest 650V, high current GS-065-120-1-D die offering. The evaluation module is design as a top-side cooled package to facilitate the assembly and evaluation of the device's thermal and electrical performance. Two versions of the evaluation module are presently being offered:

1) **120A:** The GSM-065-120-1-N-0 contains one single GS-065-120-1-D.
2) **240A:** The GSM-065-240-1-N-0 contains two GS-065-120-1-D, connected in parallel for higher current applications and as a demonstration vehicle for general paralleling of GSM-065 devices. For further information concerning current scaling by paralleling, refer to Application Note GN004.

Applications

- Energy Storage Systems
- Battery charging
- EV OBC
- DC-DC Converters

Block Diagrams

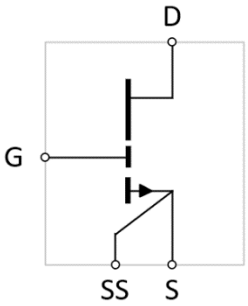


Figure 1: GSM-065-120-1-N-0

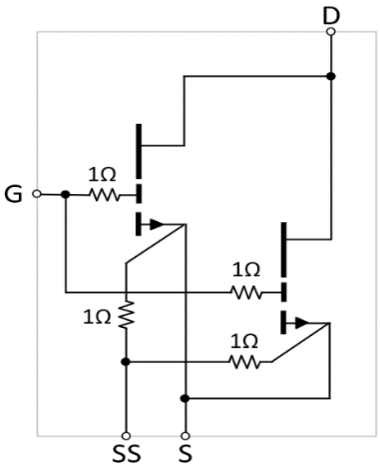


Figure 2: GSM-065-240-1-N-0

Ordering Information

Part number	Ids	Rdson	$R_{\Theta JC}$	Ordering Code
GSM-065-120-1-N-0	120A	12 mΩ	0.46 (˚C/W)	Contact Factory
GSM-065-240-1-N-0	240A	6 mΩ	0.23 (˚C/W)	Contact Factory

Submit datasheet feedback

Absolute Maximum Ratings (Tcase = 25 °C except as noted)

Parameter	Symbol	Value	Unit
Operating Junction Temperature	T_J	-55 to +150	°C
Storage Temperature Range	T_S	-55 to +150	°C
Drain-to-Source Voltage	V_{DS}	650	V
Gate-to-Source Voltage	V_{GS}	-10 to +7	V
Gate-to-Source Voltage transient (Note 1)	$V_{GS(TRANSIENT)}$	-20 to +10	V
GSM-065-120-1-N-0			
Continuous Drain Current (Note 2)	I_{DS}	120	A
Continuous Drain Current T_{case}=100 °C) (Note 2)	I_{DS}	94	A
GSM-065-240-1-N-0			
Continuous Drain Current (Note 2)	I_{DS}	240	A
Continuous Drain Current T_{case}=100 °C) (Note 2)	I_{DS}	188	A

1) Pulse ≤ 1 µs

2) Limited by saturation

Electrical Characteristics: GS-065-**120-**1-N-0

(Typical values at T_J = 25 °C, V_{GS} = 6V unless otherwise noted)

Parameter	Sym.	Min.	Typ.	Max.	Unit	Conditions
Drain-to-Source Blocking Voltage	B_{VDS}	650			V	V_{GS}=0V, I_{DSS} < 50 µA
Drain-to-Source On Resistance	$R_{DS(on)}$		12		mΩ	V_{GS} = 6 V, TJ = 25 °C I_{DS} = 9 A
Gate Threshold Turn on Voltage	$V_{GS(th)}$		1.3		V	V_{DS} = V_{GS}, I_D = 7 mA
Drain to Source Leakage Current	I_{DSS}		8		µA	V_{DS}= 650 V, V_{GS}= 0 V
Input Capacitance	C_{ISS}		1100		pF	V_{DS} = 400 V V_{GS} = 0 V f = 1 MHz
Output Capacitance	C_{OSS}		350		pF	
Reverse Transfer Capacitance	C_{RSS}		8		pF	
Total Gate Charge	Q_G		25		nC	V_{GS} = 0 to 6 V V_{DS} = 400 V
Gate-to-Source Charge	Q_{GS}		8.8		nC	
Gate-to-Drain Charge	Q_{GD}		6.8		nC	
Output Charge	Q_{OSS}		226		nC	V_{GS} = 0 V, V_{DS} = 400 V
Reverse Recovery Charge	Q_{RR}		0		nC	

Note: These specifications are based on the GS-065-120-1-D.

Electrical Characteristics: GS-065-**240**-1-N-0

(Typical values at T_J = 25 °C, V_{GS} = 6V unless otherwise noted)

Parameter	Sym.	Min.	Typ.	Max.	Unit	Conditions
Drain-to-Source Blocking Voltage	B_{VDS}	650			V	V_{GS}=0V, I_{DSS} < 50 µA
Drain-to-Source On Resistance	$R_{DS(on)}$		6		mΩ	V_{GS} = 6 V, TJ = 25 °C I_{DS} = 9 A
Gate Threshold Turn on Voltage	$V_{GS(th)}$		1.3		V	V_{DS} = V_{GS}, I_D = 7 mA
Drain to Source Leakage Current	I_{DSS}		16		µA	V_{DS}= 650 V, V_{GS}= 0 V
Input Capacitance	C_{ISS}		2200		pF	V_{DS} = 400 V V_{GS} = 0 V f = 1 MHz
Output Capacitance	C_{OSS}		700		pF	
Reverse Transfer Capacitance	C_{RSS}		16		pF	
Total Gate Charge	Q_G		50		nC	V_{GS} = 0 to 6 V V_{DS} = 400 V
Gate-to-Source Charge	Q_{GS}		17.6		nC	
Gate-to-Drain Charge	Q_{GD}		13.6		nC	
Output Charge	Q_{OSS}		452		nC	V_{GS} = 0 V, V_{DS} = 400 V
Reverse Recovery Charge	Q_{RR}		0		nC	

NOTE: These specifications are based on the GS-065-120-1-D.

Dimensions

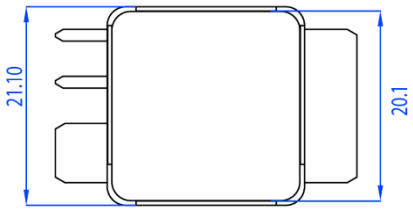


Figure 3: Top view

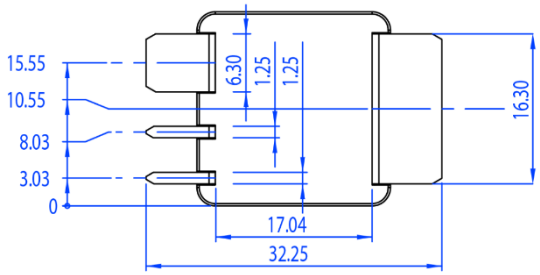


Figure 4: Bottom view

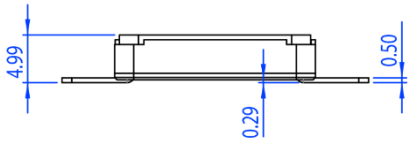


Figure 5: Side view

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

GaN Systems:

GSM-065-120-1-N-0 GSM-065-240-1-N-0