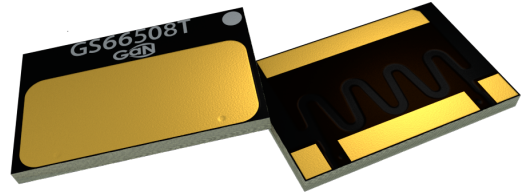


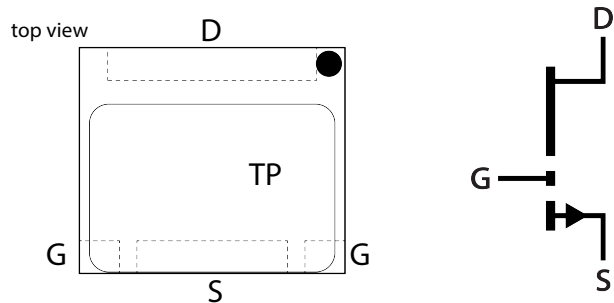
Features

- 650V enhancement mode power switch
- Top cooled configuration
- Ultra low FOM Island Technology™ die
- Low inductance GaN_{Px}™ package
- Reverse current capability
- Integral source sense
- Dual gate pads for optimal board layout
- Zero reverse recovery loss
- RoHS 6 compliant



Applications

- On-board battery chargers
- 400V DC-DC conversion
- Inverters, UPS, and VFD motor drive
- AC-DC power supplies (PFC & primary)
- VHF small form factor power adapters
- High frequency, high efficiency power conversion



TP = thermal pad - internally connected to the source (S) and to the substrate.

Absolute Maximum Ratings ($T_{case} = 25^{\circ}C$ except as noted)

Parameters	Symbol	Value	Units
Operating Junction Temperature	T_J	-55 to +150	$^{\circ}C$
Storage Temperature Range	T_S	-55 to +150	$^{\circ}C$
Drain-to-Source Voltage	V_{DS}	650	V
Gate-to-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current ($T_{case}=25^{\circ}C$)	$I_{DS(cont)25}$	30	A
Continuous Drain Current ($T_{case}=100^{\circ}C$)	$I_{DS(cont)100}$	23	A
Pulsed Drain Current ($T_{case}=25^{\circ}C$)	$I_{D,pulse}$	60	A

Thermal Characteristics (Typical values unless otherwise noted)

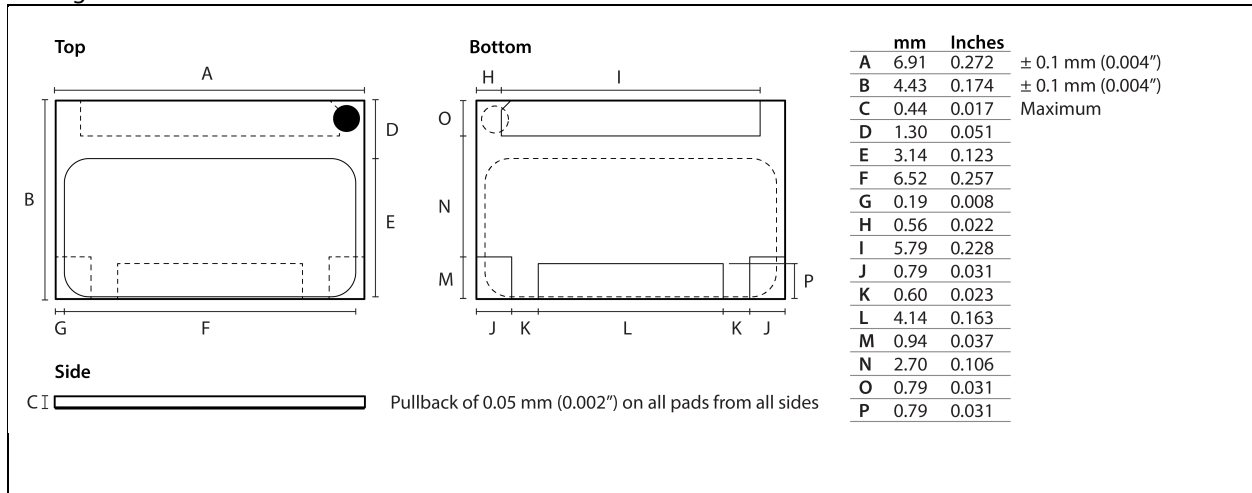
Parameters	Symbol	Value	Units
Thermal Resistance (junction to case)	$R_{\theta JC}$	0.50	$^{\circ}C/W$
Maximum Soldering Temperature (MSL3 rated)	T_{SOLD}	260	$^{\circ}C$

Ordering Information

Part number	Package type	Ordering code	Packing method
GS66508T	GaN _{Px} top-cooled	GS66508T-TR	Tape-and-reel
GS66508T	GaN _{Px} top-cooled	GS66508T-MR	Mini-reel

Electrical Characteristics (Typical values at $T_{CASE}=25^{\circ}C$ unless otherwise noted)

Parameters	Symbol	Value	Units	Conditions
Drain-to-Source Breakdown Voltage (Min.)	BV_{DSS}	650	V	$V_{GS}=0V$
Drain-to-Source On Resistance ($T_J=25^{\circ}C$)	$R_{DS(ON)}$	55	m Ω	$V_{GS}=7V, T_J=25^{\circ}C$
Drain-to-Source On Resistance ($T_J=150^{\circ}C$)		140	m Ω	$V_{GS}=7V, T_J=150^{\circ}C$
Gate Threshold Voltage	$V_{GS(th)}$	1.6	V	$V_{DS}=V_{GS}$
Drain to Source Leakage Current ($T_J=25^{\circ}C$)	I_{DSS}	2.0	μA	$V_{DS}=650V$ $V_{GS}=0V, T_J=25^{\circ}C$
Drain to Source Leakage Current ($T_J=150^{\circ}C$)		400	μA	$V_{DS}=650V$ $V_{GS}=0V, T_J=150^{\circ}C$
Gate to Source Current	I_{GS}	40	μA	$V_{GS}=7V, V_{DS}=0V$
Gate Resistance	R_G	1.5	Ω	f=1MHz, open drain
Gate Plateau Voltage	V_{plat}	3.0	V	$V_{DS}=400V$
Source-Drain Reverse Voltage	V_{SD}	2.8	V	$V_{GS}=0V, T_J=25^{\circ}C$
Input Capacitance	C_{ISS}	200	pF	$V_{DS}=400V$ $V_{GS}=0V$ f=1MHz
Output Capacitance	C_{OSS}	67		
Reverse Transfer Capacitance	C_{RSS}	2.0		
Effective Output Capacitance, Energy Related	$C_{o(er)}$	88	pF	$V_{GS}=0V$ $V_{DS}=0$ to 400V
Effective Output Capacitance, Time Related	$C_{o(tr)}$	143	pF	$I_D=constant$ $V_{GS}=0V$ $V_{DS}=0$ to 400V
Total Gate Charge	$Q_{G(TOT)}$	6.5	nC	$V_{GS}=0$ to 7V $V_{DS}=400V$
Gate-to-Source Charge	Q_{GS}	1.4	nC	
Gate-to-Drain Charge	Q_{GD}	2.8	nC	
Reverse Recovery Charge	Q_{RR}	0	nC	
Output Charge	Q_{OSS}	57	nC	$V_{GS}=0V$ $V_{DS}=400V$

Package Dimensions

Recommended Minimum Footprint
