

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
120V	2.5mΩ@10V	300A

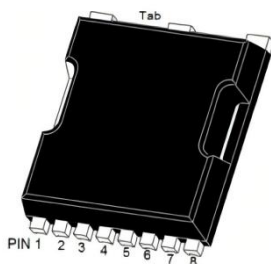
Feature

- Fast Switching
- Low Gate Charge and $R_{DS(on)}$
- Low Reverse transfer capacitances

Application

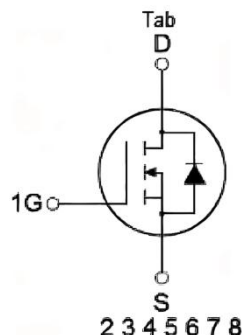
- High Speed Power switching
- DC-DC Converter
- Power Management

Package

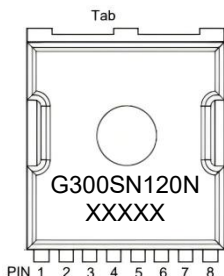


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Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	300	A
Continuous Drain Current ($T_C=100^{\circ}\text{C}$)	$I_{D(100^{\circ}\text{C})}$	200	A
Pulsed Drain Current	I_{DM}	1200	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	2056	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	320	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.39	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

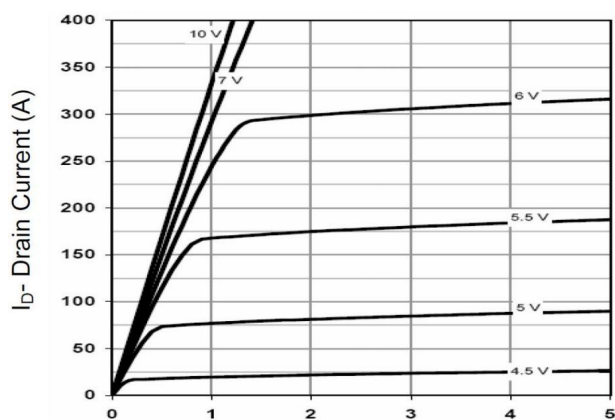
Electrical characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	120			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =96V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5	3.3	4.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =50A		1.9	2.5	mΩ
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =60V, V _{GS} =0V, f =1MHz		10423		pF
Output Capacitance	C _{oss}			713		
Reverse Transfer Capacitance	C _{rss}			40		
Total Gate Charge	Q _g	V _{DS} =60V, V _{GS} =10V, I _D =75A		175		nC
Gate-Source Charge	Q _{gs}			47.5		
Gate-Drain Charge	Q _{gd}			48.5		
Turn-on delay time	t _{d(on)}	V _{DS} =60V, V _{GS} =10V, I _D =75A R _G =1.6Ω		20		nS
Turn-on rise time	t _r			23		
Turn-off delay time	t _{d(off)}			65		
Turn-off fall time	t _f			25		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				300	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1A			1.2	V
Reverse Recovery Time	T _{rr}	I _S =100A, di/dt =-100A/μs		112		nS
Reverse Recovery Charge	Q _{rr}	T _J =25°C		289		nC

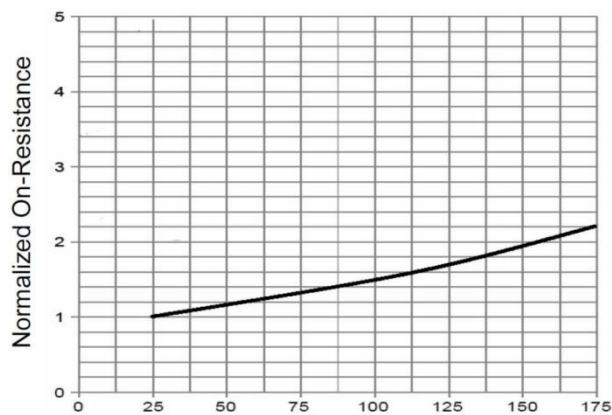
Notes:

- 1) The test condition is $V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$.
- 2) Guaranteed by design, not subject to production.

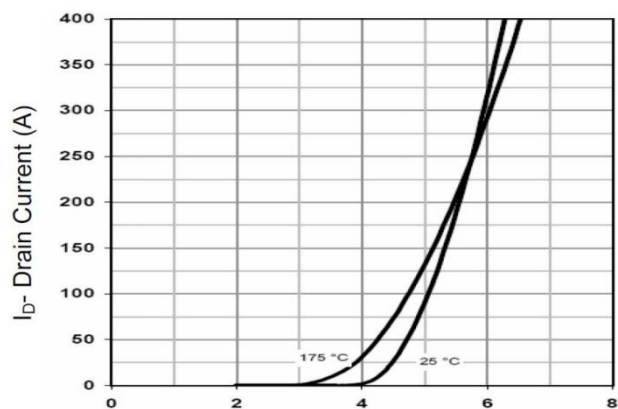
Typical Characteristics



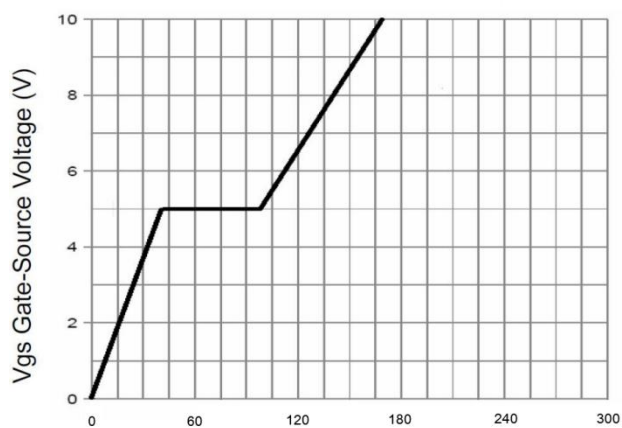
Output Characteristics



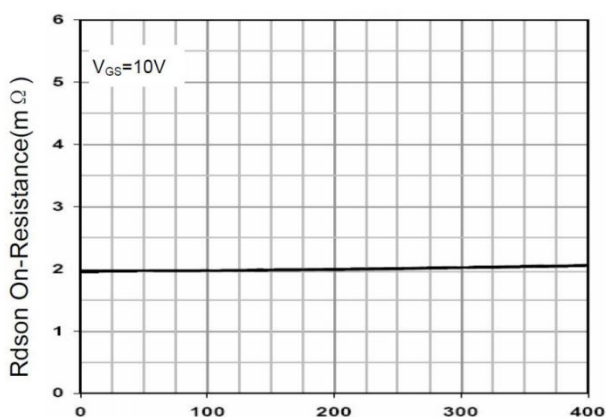
$R_{DS(on)}$ -Junction Temperature



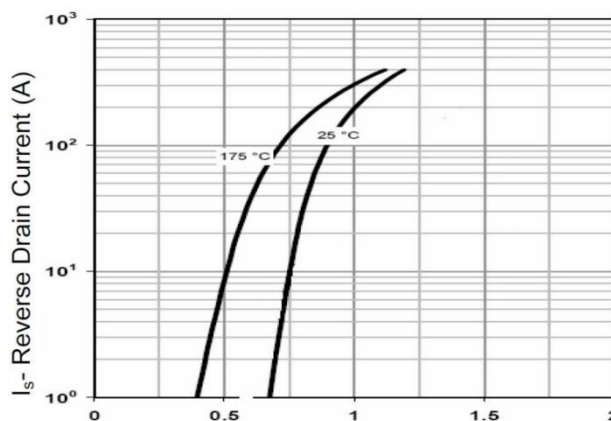
Transfer Characteristics



Gate Charge

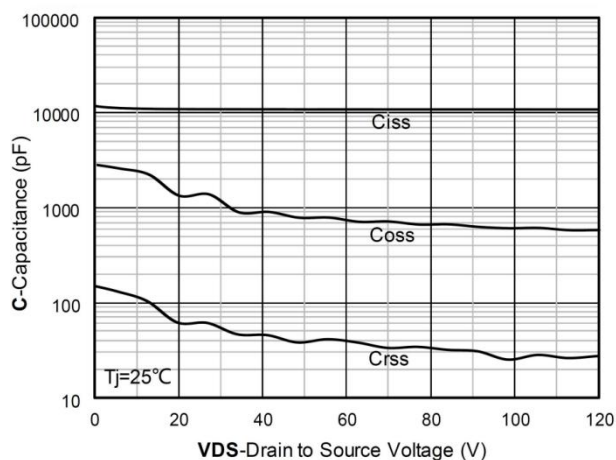


$R_{DS(on)}$ - Drain Current

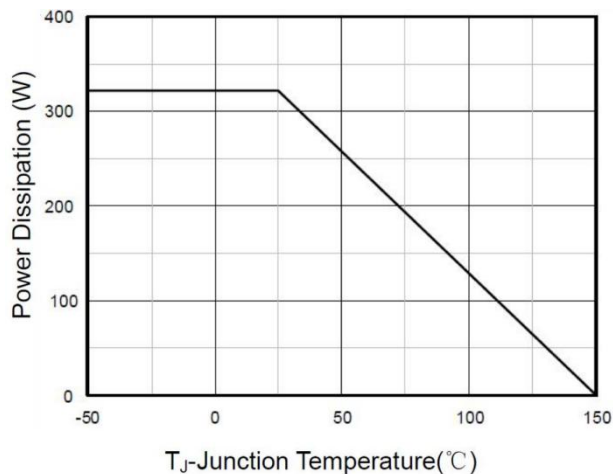


Source- Drain Diode Forward

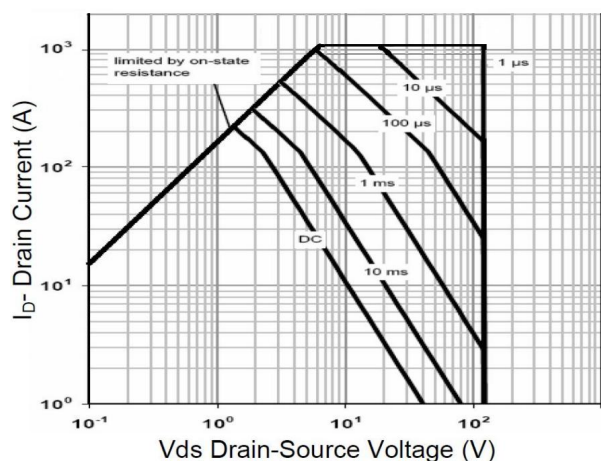
Typical Characteristics



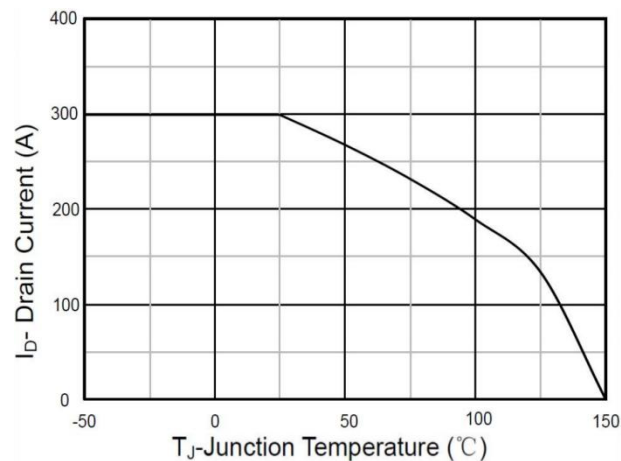
Capacitance vs Vds



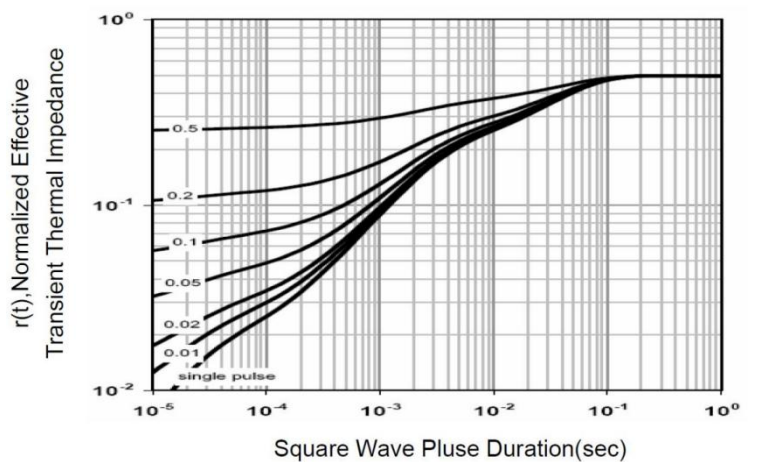
Power De-rating



Safe Operation Area

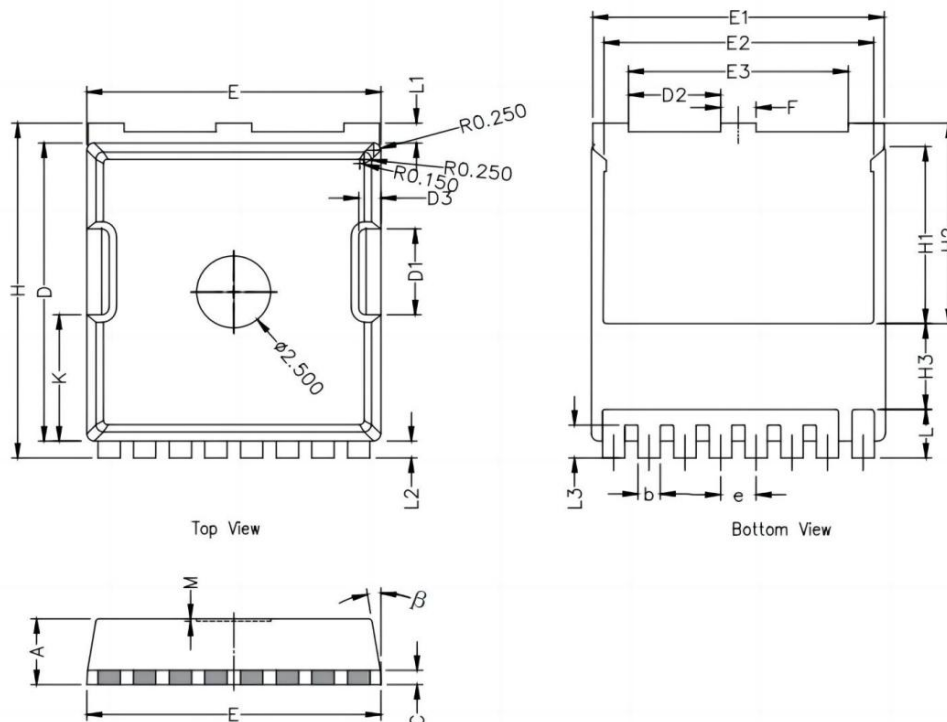


Current De-rating



Normalized Maximum Transient Thermal Impedance

TOLL Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
b	0.650	0.850	0.026	0.033
C	0.508 REF.		0.020 REF.	
D	10.250	10.550	0.404	0.415
D1	2.850	3.150	0.112	0.124
E	9.750	10.050	0.384	0.396
E1	9.650	9.950	0.380	0.392
E2	8.950	9.250	0.352	0.364
E3	7.250	7.550	0.285	0.297
e	1.200 BSC.		0.047 BSC.	
F	1.050	1.350	0.041	0.053
H	11.550	11.850	0.455	0.467
H1	6.030	6.330	0.237	0.249
H2	6.850	7.150	0.270	0.281
H3	3.000 BSC.		0.118 BSC.	
L	1.550	1.850	0.061	0.073
L1	0.550	0.850	0.022	0.033
L2	0.450	0.750	0.018	0.030
M	0.080 REF.		0.003 REF.	
β	8°	12°	8°	12°
K	4.250	4.550	0.167	0.179