

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	2.6mΩ@10V	280A

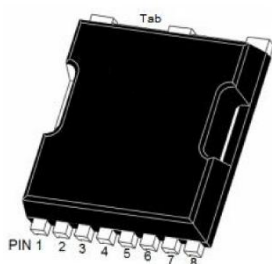
Feature

- Advanced SGT technology
- Excellent $R_{DS(on)}$
- Low gate charge

Application

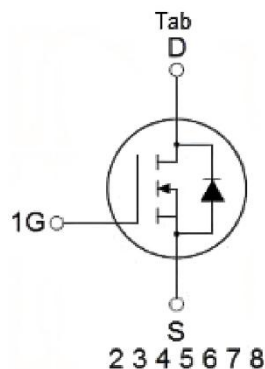
- DC/DC Converter
- LED Backlighting
- Power management switches

Package

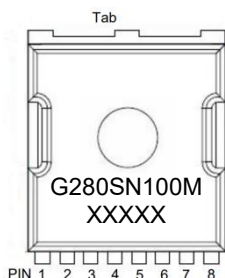


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Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾ (V _{GS} =10V)	I _D	280	A
Continuous Drain Current ¹⁾ (V _{GS} =10V, T _c =100°C)	I _D (100°C)	183	A
Pulsed Drain Current ²⁾	I _{DM}	900	A
Single Pulse Avalanche Energy ³⁾	E _{AS}	1028	mJ
Power Dissipation ⁴⁾	P _D	379	W
Thermal Resistance Junction to Case	R _{θJC}	0.33	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_c=25°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	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} =0V, T _J =25°C			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	3	4	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		2	2.6	mΩ
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		9030		pF
Output Capacitance	C _{oss}			1505		
Reverse Transfer Capacitance	C _{rss}			40		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =20A		150		nC
Gate-Source Charge	Q _{gs}			32.5		
Gate-Drain Charge	Q _{gd}			49		
Turn-on delay time	t _{d(on)}	V _{DS} =50V, V _{GS} =10V, I _D =20A R _G =3Ω		27		nS
Turn-on rise time	t _r			78.5		
Turn-off delay time	t _{d(off)}			110		
Turn-off fall time	t _f			86		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				280	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Reverse Recovery Time	T _{rr}	I _F =20A , di/dt =100A/μs		88		nS
Reverse Recovery Charge	Q _{rr}			220		nC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The data tested by pulsed, pulse width ≤300us, duty cycle ≤2%.
- 3) The EAS data shows Max. rating. The test condition is V_{DS}=50V, V_{GS}=10V, L=0.5mH, I_{AS}=54A.
- 4) The power dissipation is limited by 150°C junction temperature.
- 5) Guaranteed by design, not subject to production.

Typical Characteristics

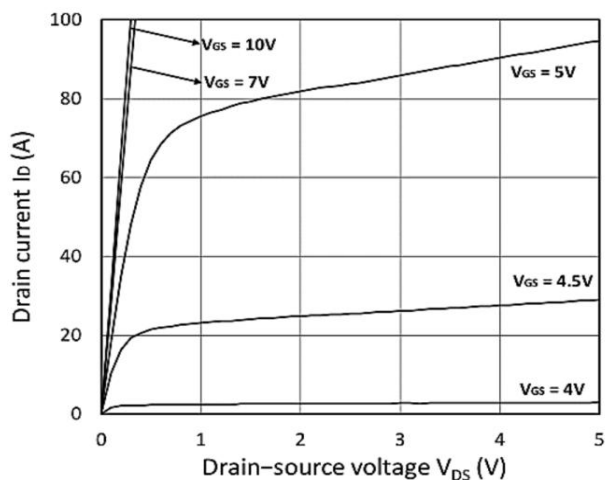


Figure 1. Output Characteristics

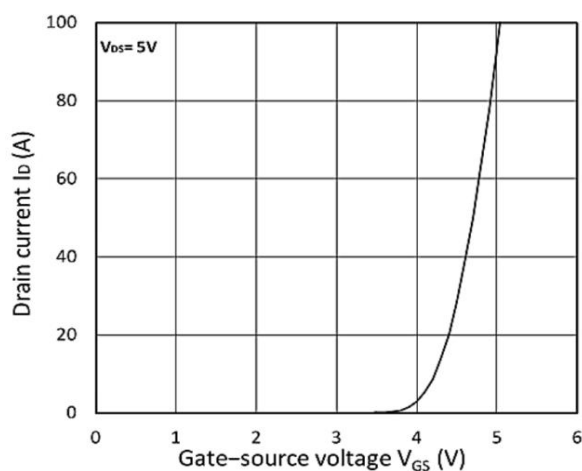


Figure 2. Transfer Characteristics

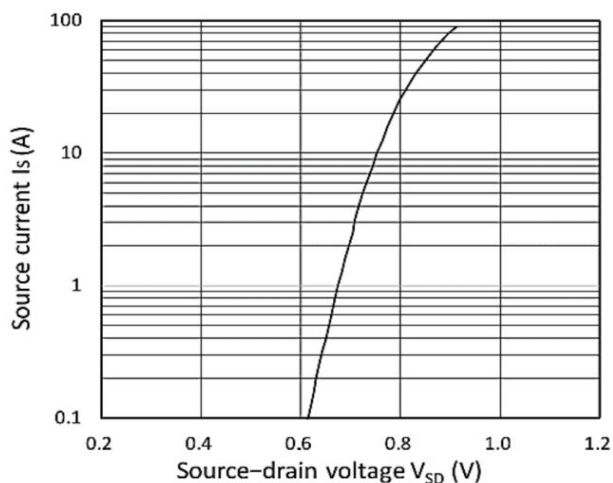


Figure 3. Forward Characteristics of Reverse

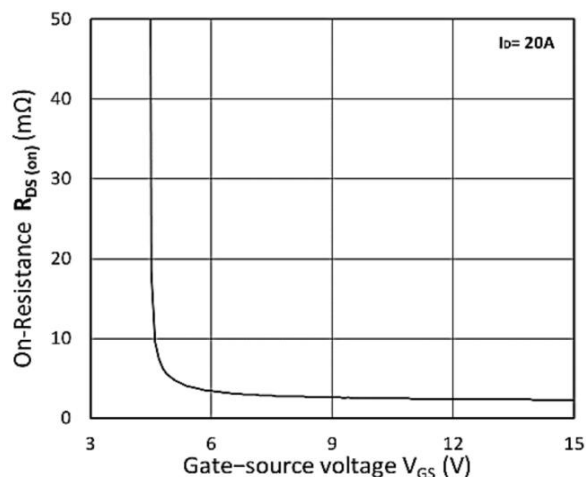


Figure 4. R_DS(ON) vs. V_GS

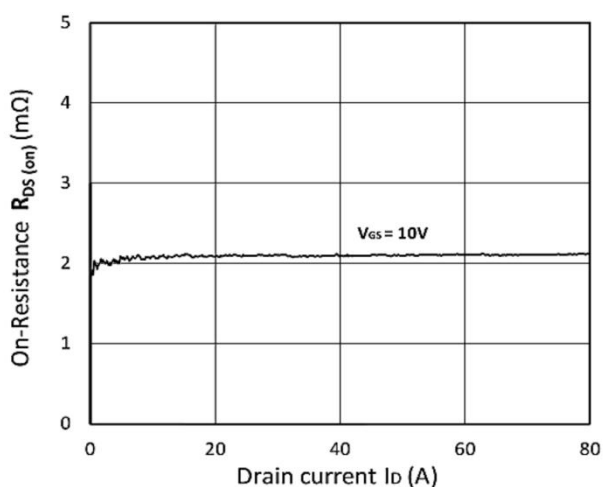


Figure 5. R_DS(ON) vs. I_D

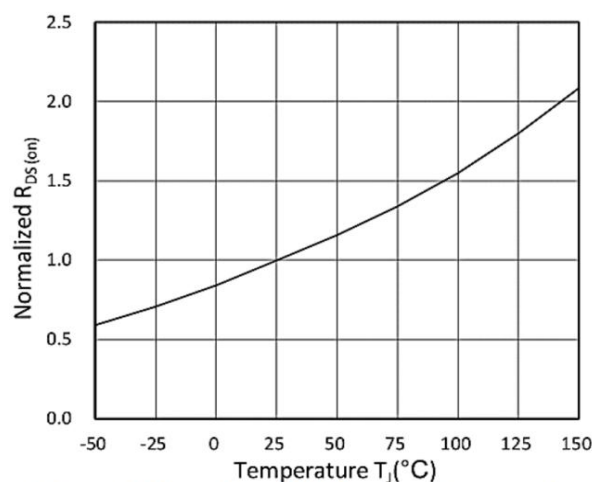


Figure 6. Normalized R_DS(on) vs. Temperature

Typical Characteristics

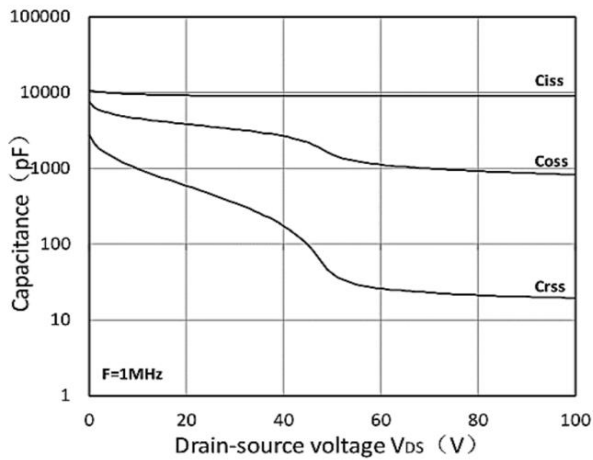


Figure 7. Capacitance Characteristics

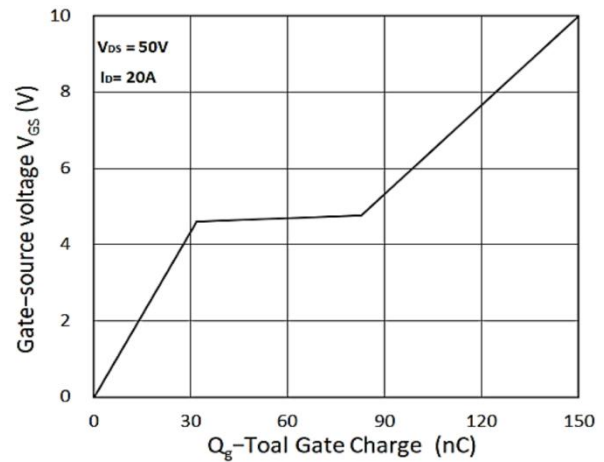


Figure 8. Gate Charge Characteristics

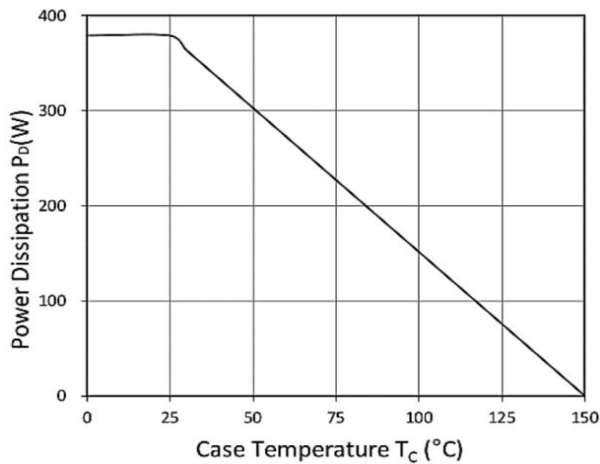


Figure 9. Power Dissipation

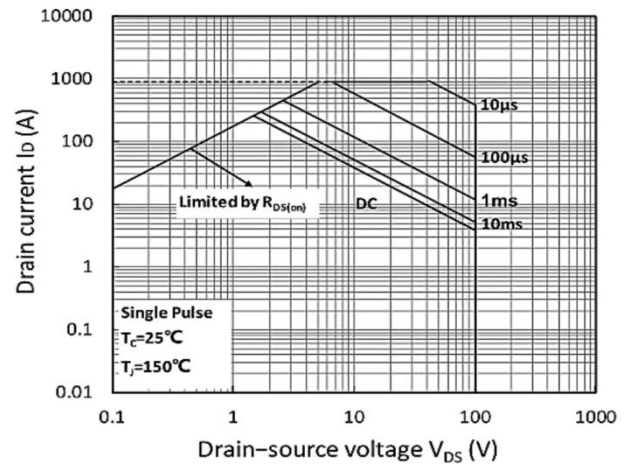


Figure 10. Safe Operating Area

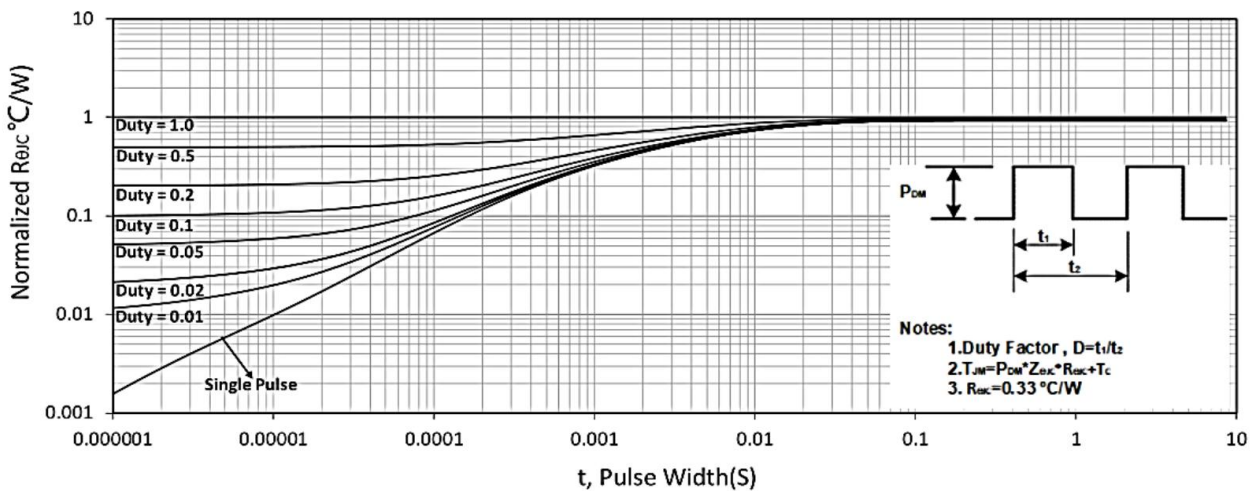
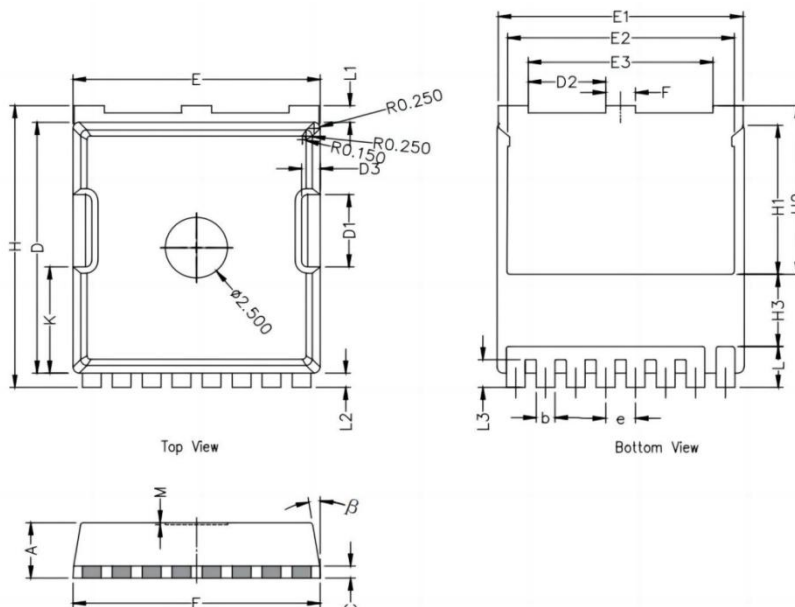


Figure 11. Normalized Maximum Transient Thermal Impedance

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
D2	2.950	3.250	0.116	0.128
D3	0.750 REF.		0.030 REF.	
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
L3	1.000	1.300	0.039	0.051
M	0.080 REF.		0.003 REF.	
β	8°	12°	8°	12°
K	4.250	4.550	0.167	0.179