Features

- 100V,400A
- $R_{DS(ON)}$=0.90mΩ (Typ.) @ V_{GS}=10V
- Advanced SGT Technology
- Provide Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TestedPower Management

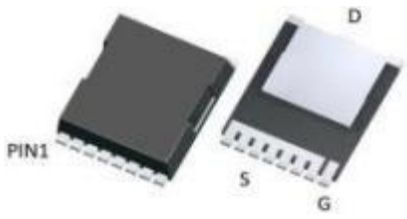
Application

. LCD TV
. Notebook
. Elevator
. Inductive heating Power tools

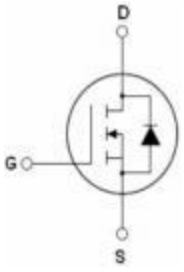
General Description

RST011N10LL Luses SGT Technology that is uniquely optimized to provide the most efficient high frequency switching performance. Both conduction and switching power losses are minimized due to an extremely low combination of RDS(ON) and Qg. This device is ideal for high-frequency switching and synchronous rectification.

Package



TOLL8 top view



Schematic diagram

Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25℃	400	A
		T_C = 100℃	248	A
I_{DM}	Pulsed Drain Current note1		1800	A
E_{AS}	Single Pulsed Avalanche Energy note2		2880	mJ
P_D	Power Dissipation	T_C = 25℃	360	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		0.35	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Package Marking and Ordering Information

Product ID	PACK	Qty（pcs）
RST011N10LL	TOLL-8	2000

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
V(BR)DSS	Drain-Source Breakdown Voltage	ID = 250uA, VGS = 0V	100	-	-	V
IDSS	Zero Gate Voltage Drain Current	VDS = 100V, VGS = 0V	-	-	1.0	uA
IGSS	Gate-Body Leakage Current	VDS = 0V, VGS = ±20V	-	-	±100	nA
On Characteristics						
VGS(th)	Gate Threshold Voltage	VDS = VGS, ID =250uA	2.0	3.0	4.0	V
RDS(ON)	Static Drain-Source ON-Resistance(4)	VGS = 10V, ID = 20A	-	0.9	1.1	mΩ
Dynamic Characteristics						
R_g	Gate Resistance	f= 1MHz	-	3.9	-	Ω
Ciss	Input Capacitance	VGS = 0V, VDS = 50V, f= 1MHz	-	14350	-	pF
Coss	Output Capacitance		-	5240	-	pF
Crss	Reverse Transfer Capacitance		-	128	-	pF
Q_g	Total Gate Charge	VGS = 0 to 10V VDS = 50V, ID =30A	-	221	-	nC
Qgs	Gate Source Charge		-	68	-	nC
Qgd	Gate Drain("Miller") Charge		-	59	-	nC
Switching Characteristics						
td(on)	Turn-On DelayTime	VGS = 10V, VDD = 50V ID= 30A, RGEN = 6Ω	-	42	-	ns
t_r	Turn-On Rise Time		-	71	-	ns
td(off)	Turn-Off DelayTime		-	159	-	ns
t_f	Turn-Off Fall Time		-	93	-	ns
Body Diode Characteristics						
Is	Maximum Continuous Body Diode Forward Current		-	-	400	A
ISM	Maximum Pulsed Body Diode Forward Current		-	-	1350	A
VSD	Body Diode Forward Voltage	V_{GS} = 0V, I_S = 20A	-		1.2	V
trr	Body Diode Reverse Recovery Time	I_F = 20A, di/dt = 100A/us	-	135	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	381	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. EAS condition: Starting TJ=25C, VDD=40V, VGS=10V, L=0.5mH, IAS=82.6A, VDD=0V during time in avalanche.

3. RθJA is measured with the device mounted on a 1inch2 pad of 2oz copper FR4 PCB.

4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Performance Characteristics

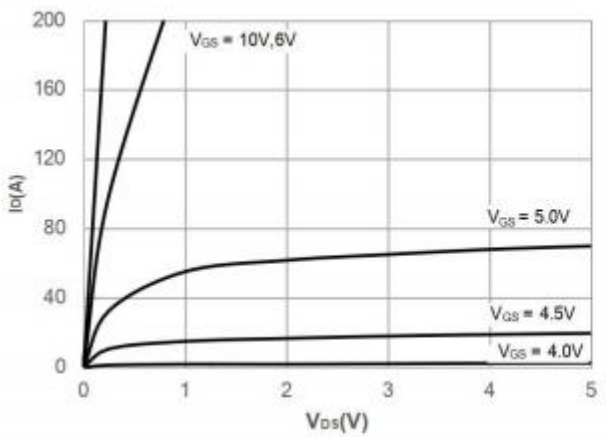


Figure 1 Output Characteristics

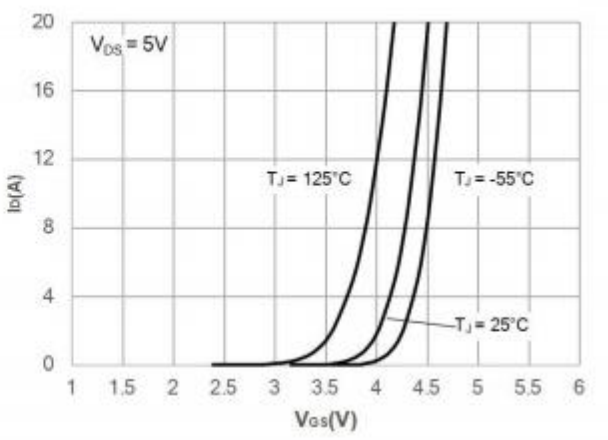


Figure 2 Transfer Characteristics

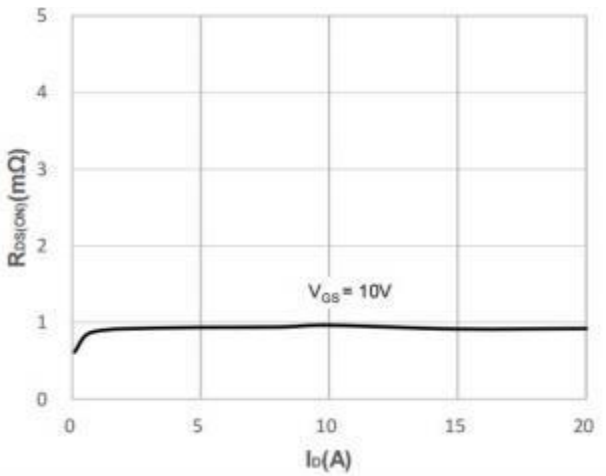


Figure 3 Rds(on)- Drain Current

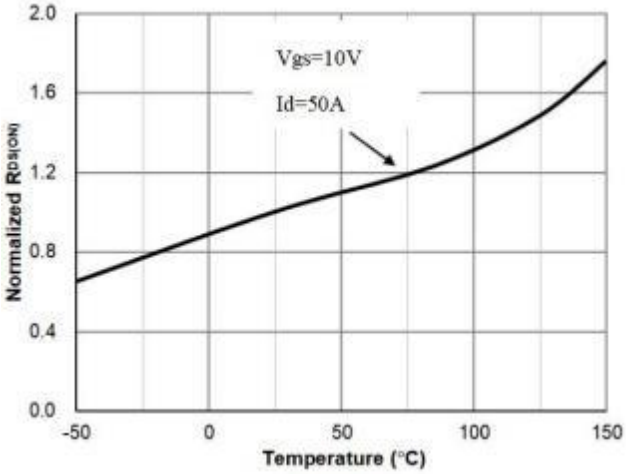


Figure 4 Rds(on)-Junction Temperature

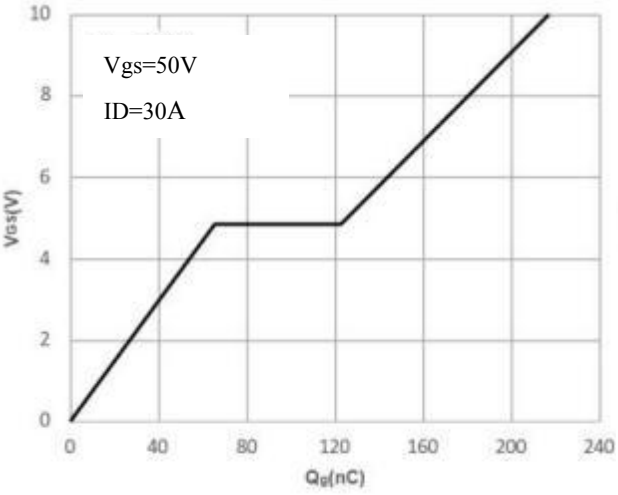


Figure 5 Gate Charge

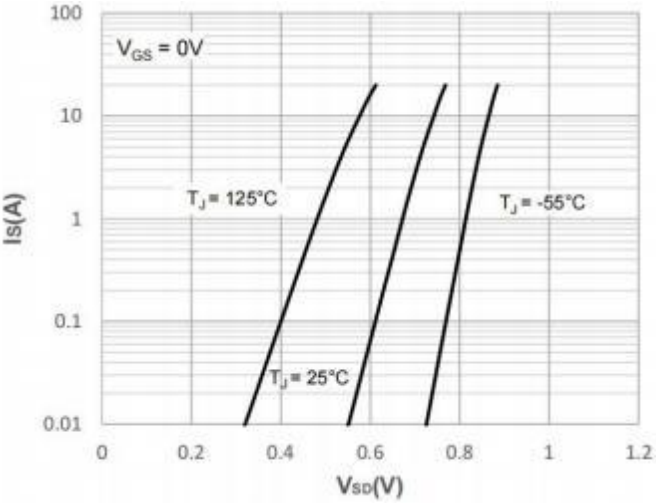


Figure 6 Source- Drain Diode Forward

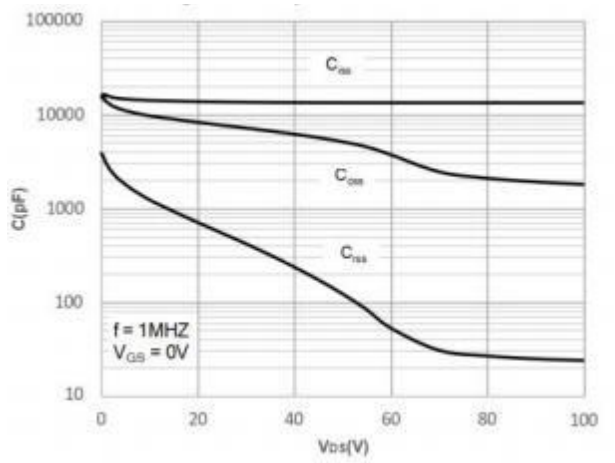


Figure 7 Capacitance vs Vds

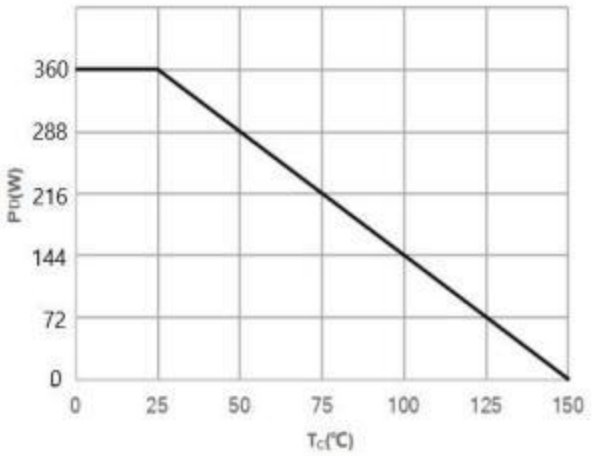


Figure 8 Power De-rating

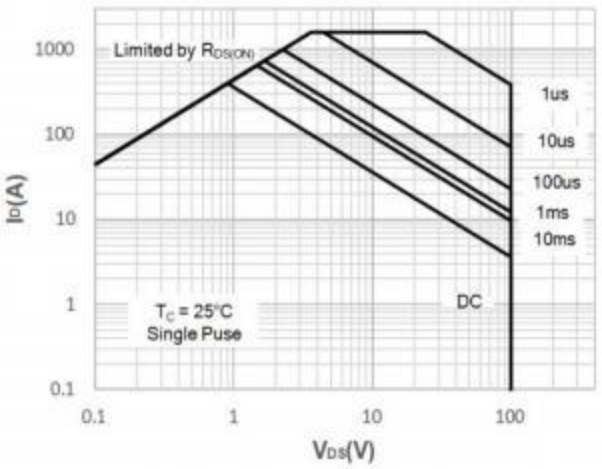


Figure 9 Safe Operation Area

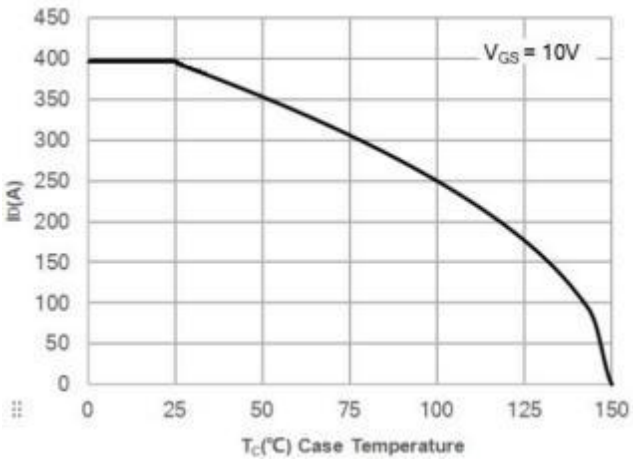


Figure 10 Current De-rating

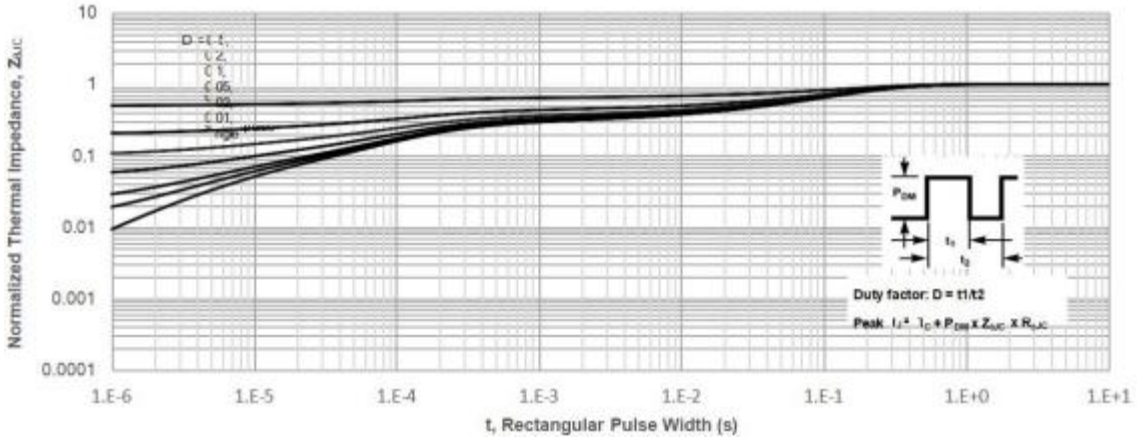
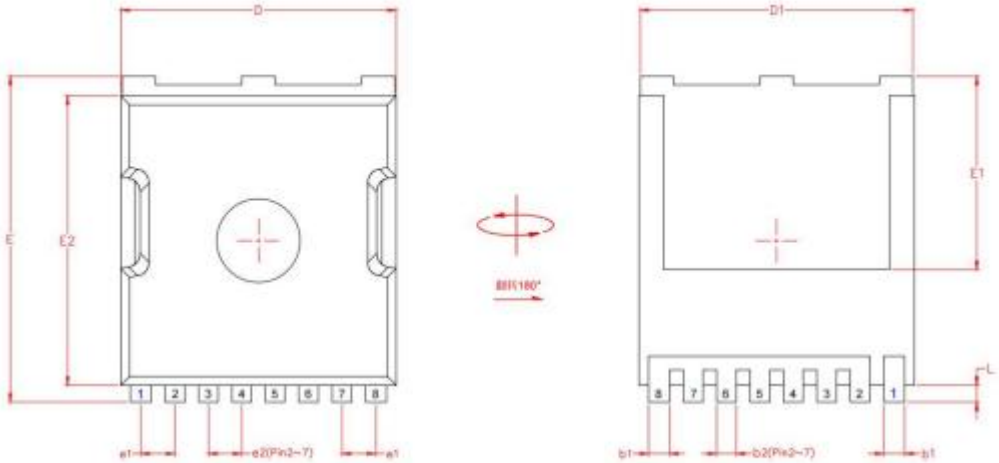


Figure 11 Normalized Maximum Transient Thermal Impedance

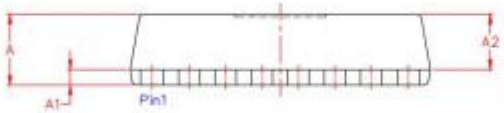
Package Dimensions

TOLL-8



TOP—VIEW:

BOTTOM—VIEW:



FRONT—VIEW:

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.25	2.30	2.35
A1	0.45	0.50	0.55
A2	1.75	1.80	1.85
b1	0.70	0.75	0.80
b2	0.65	0.70	0.75
D	9.85	9.90	9.95
E	11.65	11.70	11.75
D1	9.75	9.80	9.85
E1	6.90	6.95	7.00
E2	10.35	10.40	10.45
e1	1.18	1.23	1.28
e2	1.15	1.20	1.25
L	0.55	0.60	0.65