Description

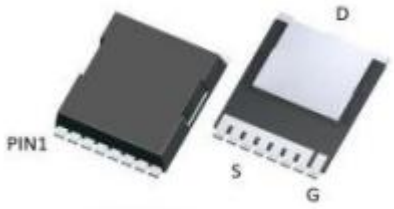
Features

- 110V,390A
- RDS(ON)=1.2mΩ (Typ.) @ VGS =10V
- Advanced SGT Technology
- Provide Excellent RDS(ON) and Low Gate Charge
- 100% UIS Tested

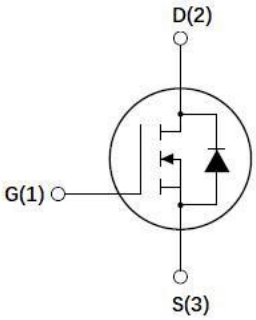
Application

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

Package



TOLL8 top view



Package Marking and Ordering Information

Product ID	PACK	Qty（pcs）
RST015N11LL	TOLL-8	2000

Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter		Value	Units
VDSS	Drain-Source Voltage		110	V
VGSS	Gate-Source Voltage		±20	V
ID	Continuous Drain Current	TC = 25℃	390	A
		TC = 100℃	244	A
IDM	Pulsed Drain Current note1		1560	A
EAS	Single Pulsed Avalanche Energy note2		3060	mJ
PD	Power Dissipation	TC = 25℃	431	W
Derating factor			3.1	℃/W
TJ, TSTG	Operating and Storage Temperature Range		-55 to 150	℃

Thermal resistance ratings

Parameter		Symbl	Max.	Unit
Thermal resistance, junction-to-case	Steady state	RθJC	0.29	°C/W

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Static parameter						
Drain to source breakdown voltage	V(BR)DSS	VGS = 0 V, ID = 1 mA	110	-	-	V
Gate-source threshold voltage	VGS(th)	VDS = VGS, ID = 250 μA	2.5	3.3	4.1	V
Gate-body leakage	IGSS	VDS = 0 V, VGS = ±20 V	-	-	±100	nA
Zero gate voltage drain current	IDSS	VDS = 105 V, VGS = 0 V	-	-	1	μA
Drain-source on-resistance	RDS(on)	VGS = 10 V, ID = 50 A	-	1.2	1.5	mΩ
Forward transconductance(5)	GFS	VDS = 5 V, ID =100 A	-	300	-	S
Gate resistance	RG	f = 1 MHz	-	1	-	Ω
Dynamic(5)						
Total gate charge	Q_g	VDS = 50 V, ID =100 A, VGS = 10 V	-	216	-	nC
Gate-source charge	Q_{gs}		-	67	-	
Gate-drain charge	Q_{gd}		-	69	-	
Turn-on delay time	td(on)	VDS = 50 V, ID = 100A, VGS = 10 V, RGEN = 6 Ω	-	123	-	ns
Rise time	tr		-	189	-	
Turn-off delay time	td(off)		-	91	-	
Fall time	tf		-	106	-	
Input capacitance	C_{iss}	VDS = 50 V, VGS = 0 V, f = 1 MHz	-	12700	-	pF
Output capacitance	C_{oss}		-	3200	-	
Reverse transfer capacitance	C_{rss}		-	135	-	
Reverse Diode Characteristics(5)						
Diode forward voltage	VSD	VGS = 0 V, IF = 100A	-	0.85	1.1	V
Reverse recovery time	trr	VDS = 50 V, IF = 100A, di/dt = 100A/μs	-	100	-	ns
Reverse recovery charge	Qrr		-	275	-	nC

Notes

1.Package limited.

2.Pulse width limited by maximum junction temperature.

3. V_{DS} = 75 V, V_{GS} = 10 V, L = 0.5 mH.

4.$R_{\theta JA}$ is determined with the device mounted on a 1 in^2 pad 2 oz copper pad on a 1.5x1.5 in. board of FR-4 material.

5.Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

Fig.1 Typ. transfer characteristics

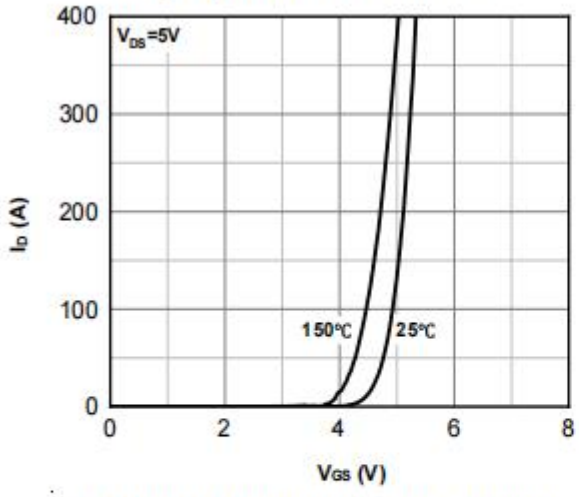


Fig.2 Typ. output characteristics

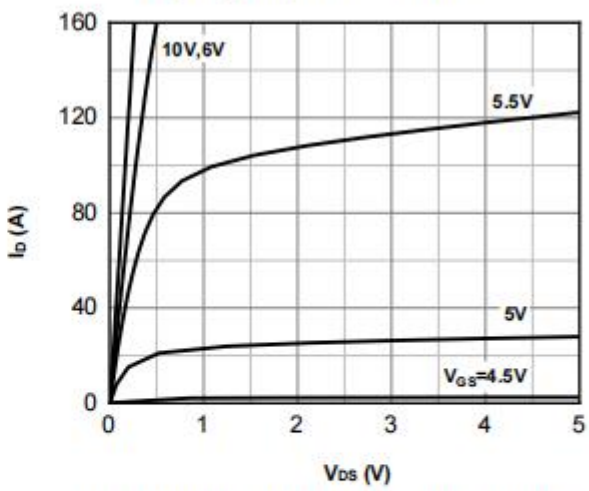


Fig.3 Normalized on-resistance vs drain current

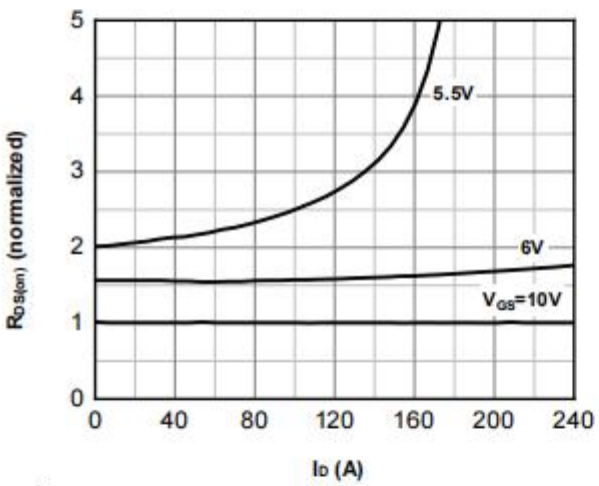


Fig.4 Typ. on-resistance vs gate-source voltage

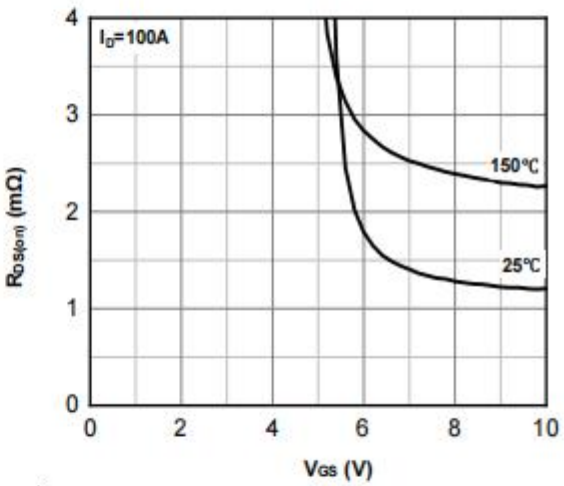


Fig.5 Normalized on-resistance vs junction temperature

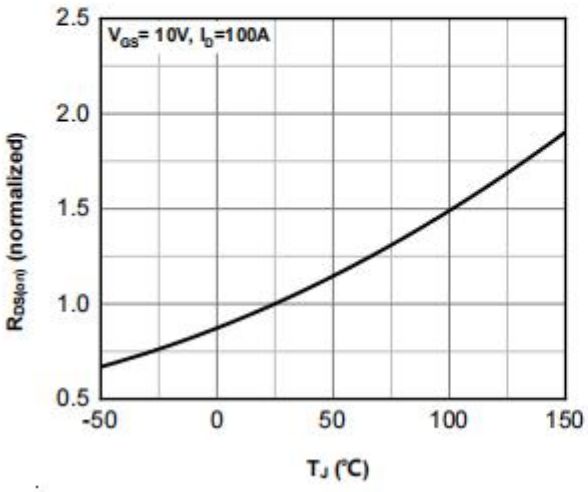


Fig.6 Typ. gate charge

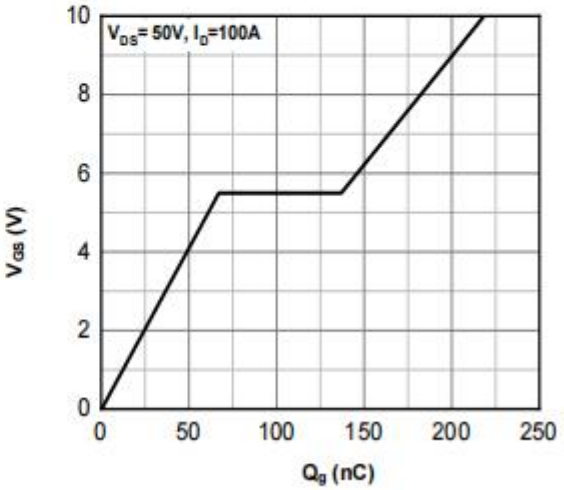


Fig.7 Typ. forward characteristics of body diode

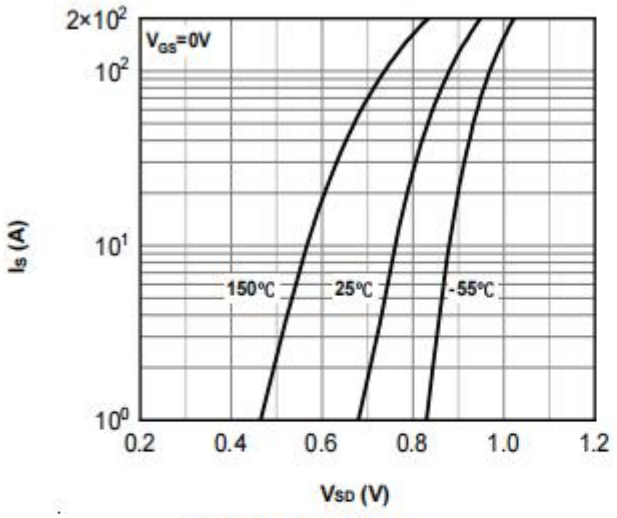


Fig.8 Safe operating area

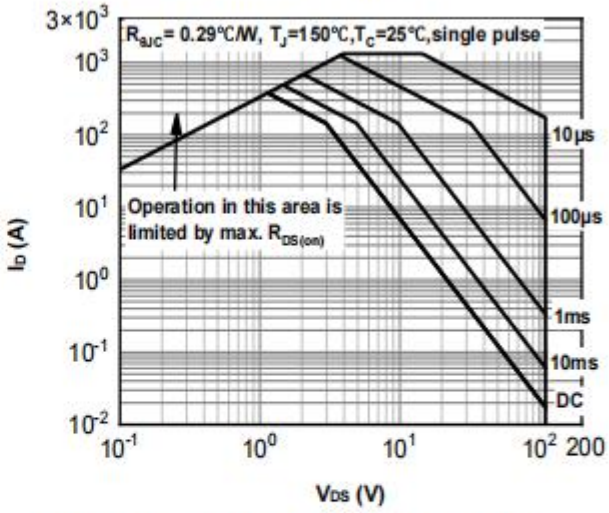


Fig.9 Typ. Capacitance

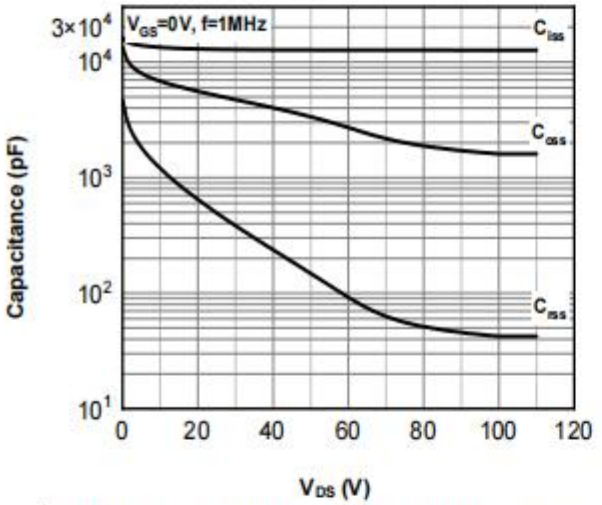


Fig.10 Single pulse maximum power dissipation

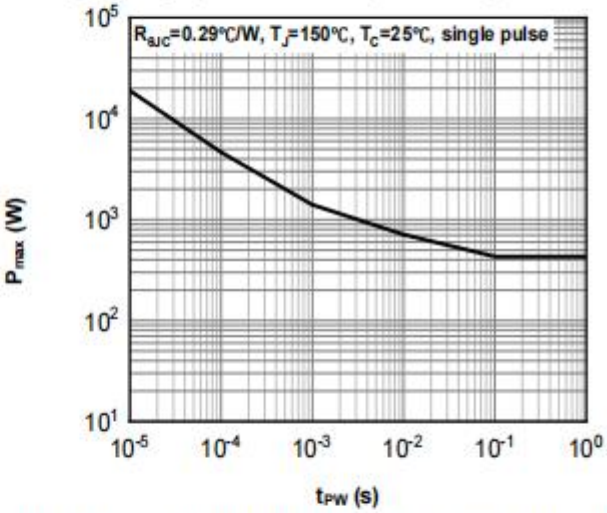


Fig.11 Max. power dissipation vs case temperature

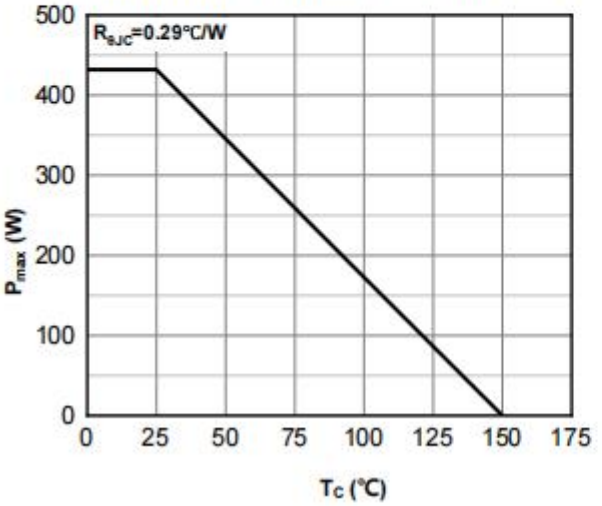


Fig.12 Max. continuous drain current vs case temperature

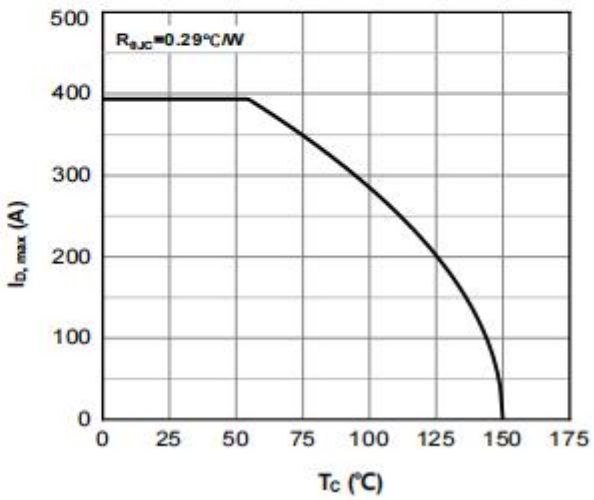


Fig.13 Normalized $V_{(BR)DSS}$ vs junction temperature

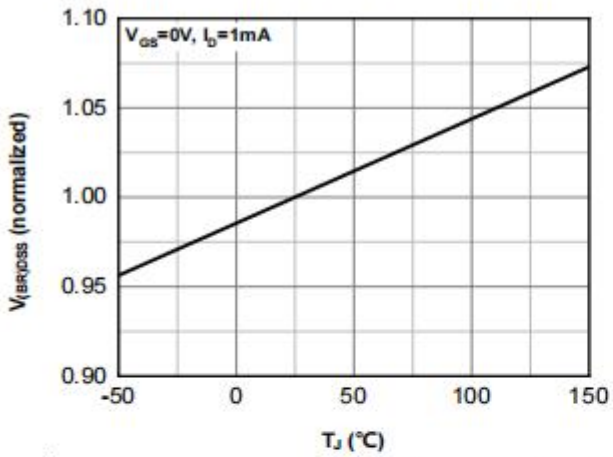


Fig.14 Normalized $V_{GS(th)}$ vs junction temperature

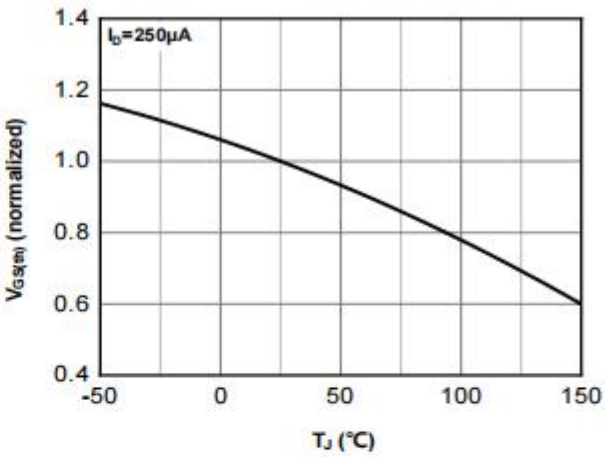
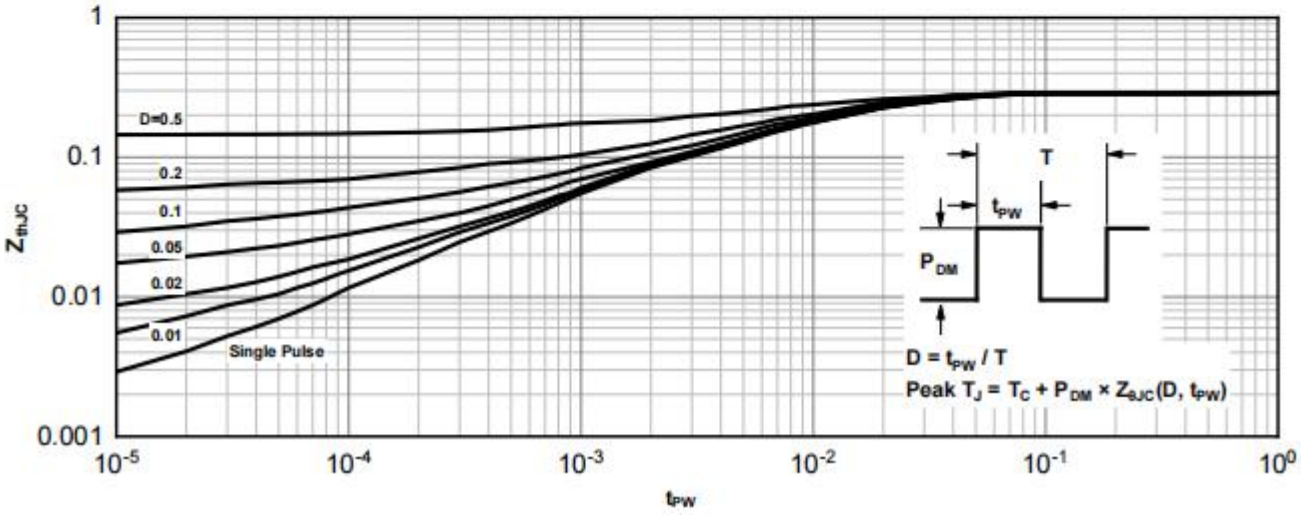
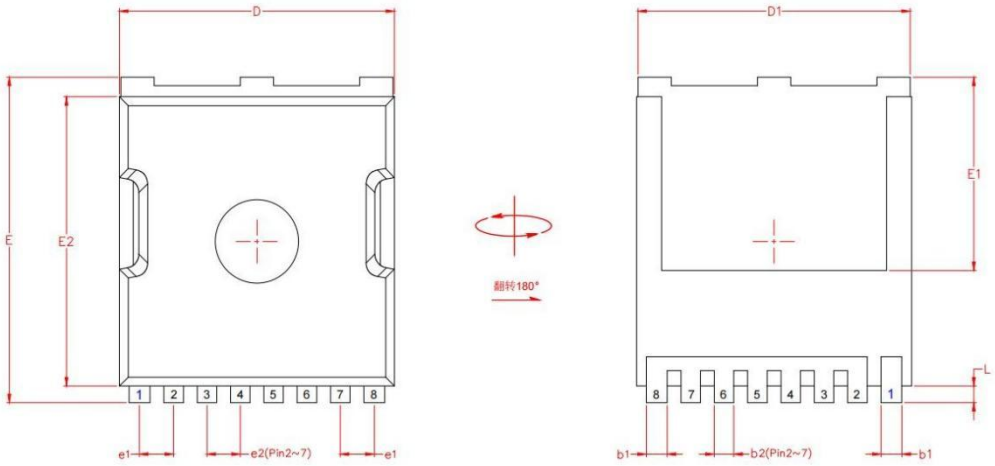


Fig.15 Transient thermal impedance from junction to case



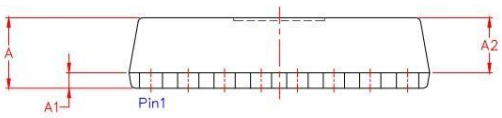
Package Information

- 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