

TS07N03N3

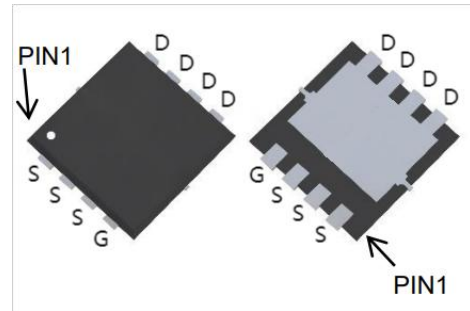
Single N-Channel Power MOSFET

V _{DSS} (V)	R _{DS (ON)}	I _{D(A)}
30	7mΩ(Typ)@V _{GS} =10V	60
	10mΩ(Typ)@V _{GS} =4.5V	

FEATURE:

- The TS07N03N3 is the high cell density trenched N-ch MOSFETS, which provides excellent R_{DS ON} and efficiency for most of the small power switching and load switch applications.

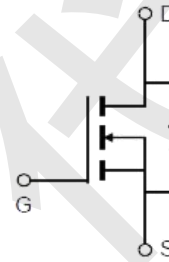
Pin Description



PDFN3*3-8L

APPLICATIONS:

- Load Switch



Ordering and Marking Information

Product ID	Marking	Package	Packaging	Quantity
TS07N03N3		PDFN3*3-8L	Tape&Reel	5000

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current(V _{GS} = 4.5V)	T _A =25°C	60
		T _A =70°C	30
T _J	Maximum Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-55 to 150	°C
I _{DM}	Pulsed Drain Current	120	A
P _D	Maximum Power Dissipation	T _A =25°C	18
		T _A =70°C	---
E _{AS}	Avalanche Energy, Single Pulsed	39	mJ
R _{θJC}	Thermal Resistance-Junction to Case	4.32	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	75	°C/W

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Electrical Characteristics ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	30	---	---	V
VGS(th)	Gate threshold voltage	VDS=VGS, ID=250uA	1.0	1.5	2.5	V
RDS(on)	Drain-Source On-state Resistance	VGS=10V, ID=10A	---	7	8.5	mΩ
		VGS=4.5V, ID=5A	---	10	14	mΩ
IGSS	Gate-source leakage current	VGS=±20V, VDS=0V	---	---	±100	μA
IDSS	Zero gate voltage drain current	VDS=30V, VGS=0V, TJ=25°C	---	---	1	μA
		TJ=55°C	---	---	---	
Dynamic Characteristic						
Ciss	Input Capacitance	VGS=0V, VDS=15V, Frequency=1.0MHz	---	1200	---	pF
Coss	Output Capacitance		---	163	---	
Crss	Reverse Transfer Capacitance		---	131	---	
QG	Gate Total Charge	VDS=20V, VGS=4.5V, IDS=12A	---	12.8	---	nC
Qgs	Gate-Source charge		---	3.3	---	
Qgd	Gate-Drain charge		---	6.5	---	
td(on)	Turn-on delay time	VDD=12V, VGS=10V, RG=3Ω, ID=5A	---	4.5	---	ns
tr	Turn-on Rise Time		---	10.8	---	
td(off)	Turn-off Delay Time		---	25.5	---	
tf	Turn-off Fall Time		---	9.6	---	
RG	Gate Resistance	VGS=0V, VDS=0V, F=1MHz	---	1.7	---	Ω
Diode Characteristics						
VSD	Diode Forward Voltage	VGS=0V, IS=1A, TJ=25°C	---	---	1.2	V
trr	Reverse Recovery Time	ISD=4.1A, dISD/dt=-100A/μs	---	---	---	ns
Qrr	Reverse Recovery Charge		---	---	---	nC

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TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

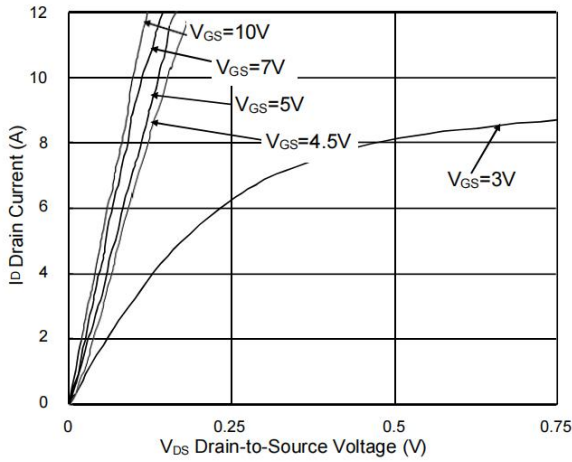


Fig.1 Typical Output Characteristics

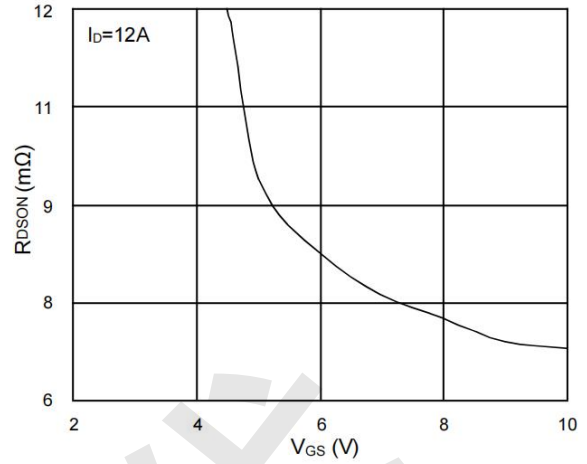


Fig.2 On-Resistance vs. G-S Voltage

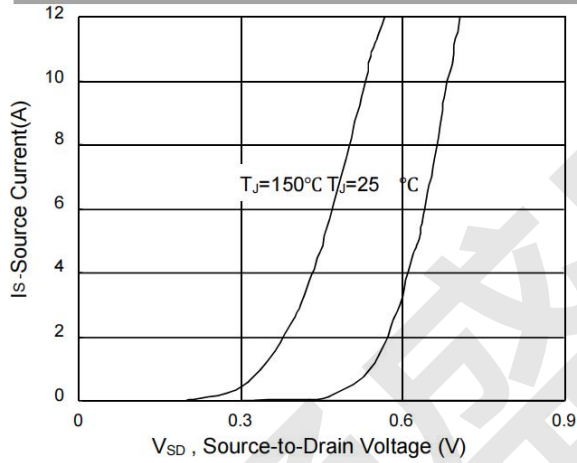


Fig.3 Forward Characteristics of Reverse

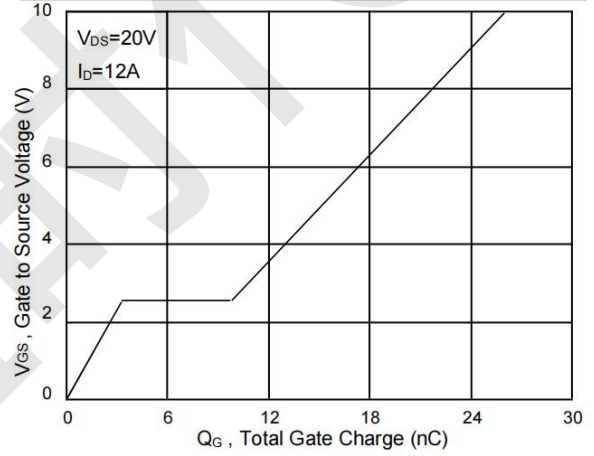


Fig.4 Gate-Charge Characteristics

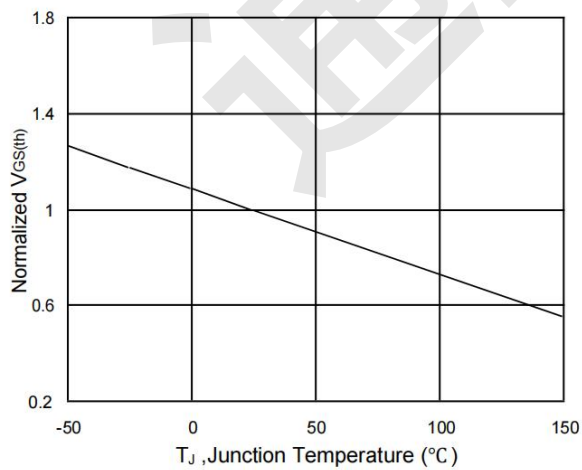


Fig.5 Normalized VGS(th) vs. TJ

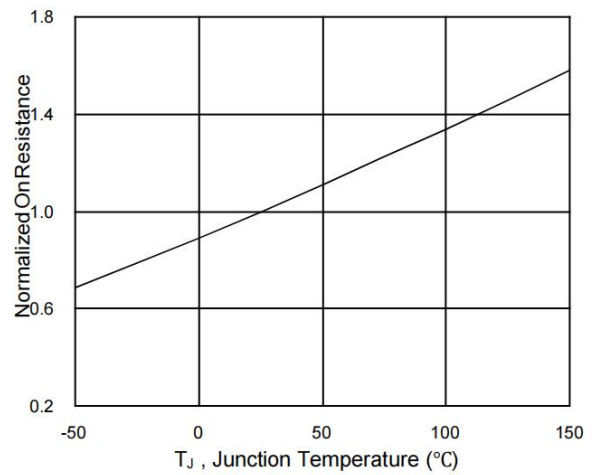


Fig.6 Normalized RDS(on) vs. TJ

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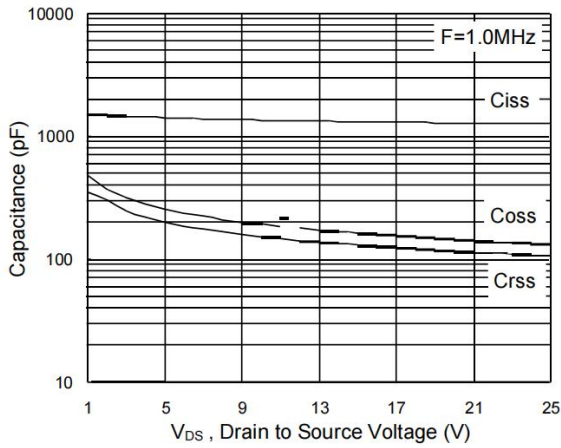


Fig.7 Capacitance

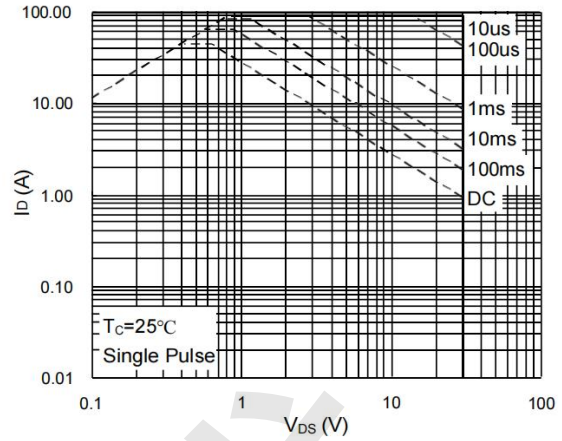


Fig.8 Safe Operating Area

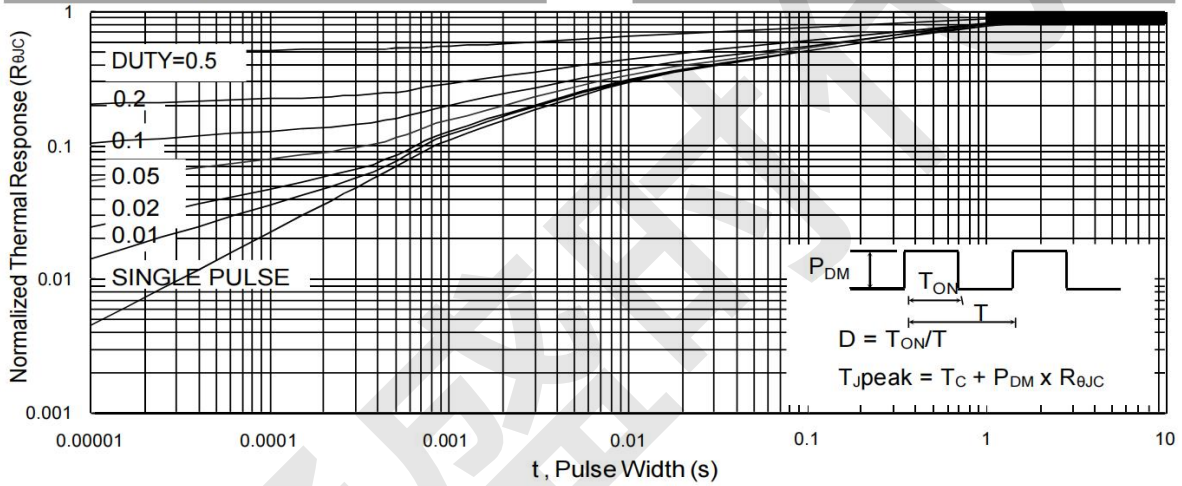


Fig.9 Normalized Maximum Transient Thermal Impedance

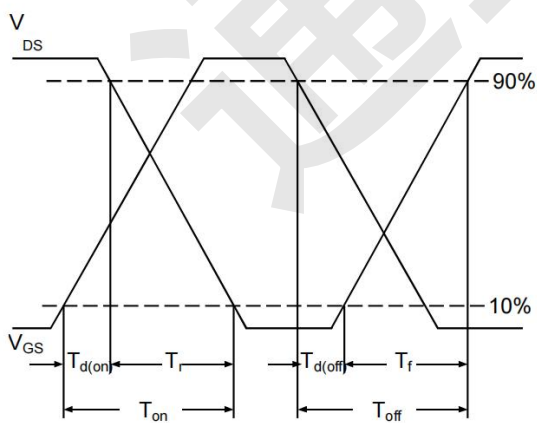


Fig.10 Switching Time Waveform

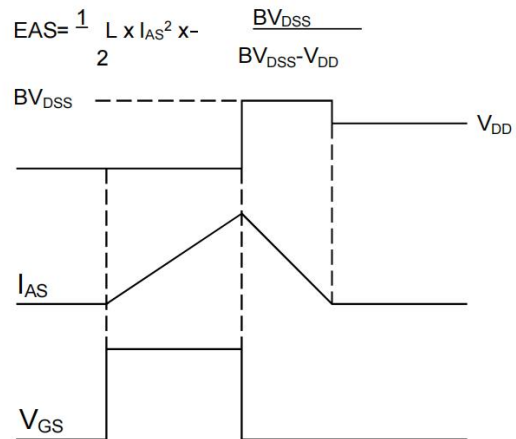
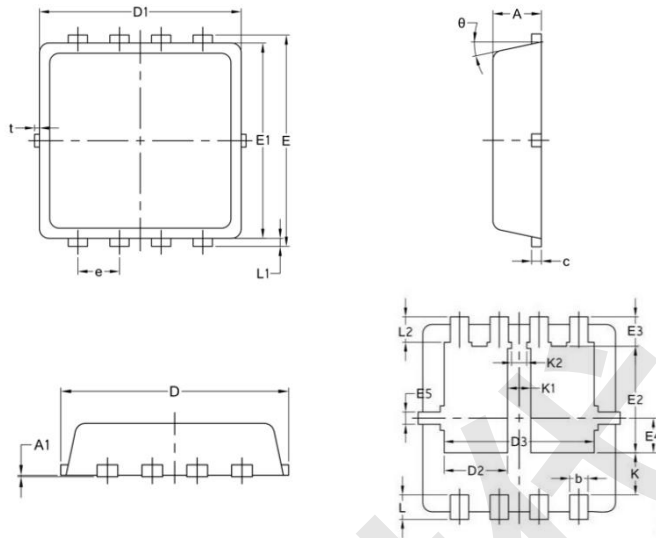


Fig.11 Unclamped Inductive Switching Waveform

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Package Mechanical Data-PDFN3*3-8L Double



Symbol	Common		
	Mm		
	Min	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.25	0.30	0.39
c	0.14	0.152	0.20
D	3.20	3.30	3.45
D1	3.05	3.15	3.25
D2	0.84	1.04	1.24
D3	2.30	2.45	2.60
E	3.20	3.30	3.40
E1	2.95	3.05	3.15
E2	1.60	1.74	1.90
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.50	0.69	0.80
K1	0.30	0.38	0.53
K2	0.15	0.25	0.35
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
L2	0.27	0.42	0.57
t	0	0.075	0.13
Φ	10°	12°	14°

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Edition	Date	Change
Rve1.0	2022/11	Initial release

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