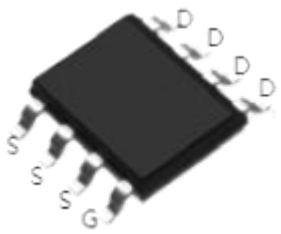
TS08N02S

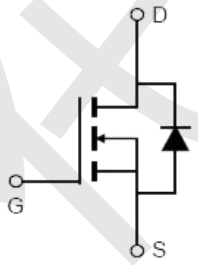
Single N-Channel Power MOSFET

V_{DSS}（V）	$R_{DS\ (ON)}$	$I_{D(A)}$
20	8mΩ(Typ)@VGS=4.5V	12
	11.7mΩ(Typ)@VGS=2.5V	

Pin Description



SOP-8



FEATURE:

- The TS08N02S is the high cell density trenched N-ch MOSFETS, which provides excellent R_{DSON} and efficiency for most of the small power switching and load switch applications.

APPLICATIONS:

- Load Switch

Ordering and Marking Information

Product ID	Marking	Package	Packaging	Quantity
TS08N02S		SOP-8	Tape&Reel	3000

Absolute Maximum Ratings

Symbol	Parameter		Rating	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current(V_{GS}= -4.5V)	T_A=25°C	12	A
		T_A=70°C	7	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_{DM}	Pulsed Drain Current		34	A
P_D	Maximum Power Dissipation	T_A=25°C	3	W
		T_A=70°C	0.86	
E_{AS}	Avalanche Energy, Single Pulsed		---	mJ
RθJC	Thermal Resistance-Junction to Case		---	°C/W
RθJA	Thermal Resistance-Junction to Ambient		100	°C/W

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	20	---	---	V
VGS(th)	Gate threshold voltage	VDS=VGS,ID=250uA	0.5	0.75	1.2	V
RDS(ON)	Drain-Source On-state Resistance	VGS=4.5V , ID=15A	---	8	11.2	mΩ
		VGS=2.5V , ID=10A	---	11.7	17.5	mΩ
IGSS	Gate-source leakage current	VGS=±12V , VDS=0V	---	---	±100	μA
IDSS	Zero gate voltage drain current	VDS=20V,VGS=0V,TJ=25℃	---	---	1	μA
		TJ=55℃	---	---	---	
Dynamic Characteristic						
Ciss	Input Capacitance	VGS=0V, VDS=10V, Frequency=1.0MHz	---	1000	---	pF
Coss	Output Capacitance		---	182	---	
Crss	Reverse Transfer Capacitance		---	164	---	
QG	Gate Total Charge	VDS=10V, VGS=4.5V, IDS=15A	---	15	---	nC
Qgs	Gate-Source charge		---	2	---	
Qgd	Gate-Drain charge		---	5.2	---	
td(on)	Turn-on delay time	VDD=10V , VGS=4.5V , RG=3Ω, ID=15A	---	9	---	ns
tr	Turn-on Rise Time		---	25	---	
td(off)	Turn-off Delay Time		---	37	---	
tf	Turn-off Fall Time		---	14	---	
RG	Gate Resistance	VGS=0V,VDS=0V,F=1MHz	---	---	---	Ω
Diode Characteristics						
VSD	Diode Forward Voltage	VGS=0V , IS=1A , TJ=25℃	---	---	1.2	V
trr	Reverse Recovery Time	ISD=4.1A, dISD/dt=-100A/μs	---	---	---	ns
Qrr	Reverse Recovery Charge		---	---	---	nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

Figure1: Output Characteristics

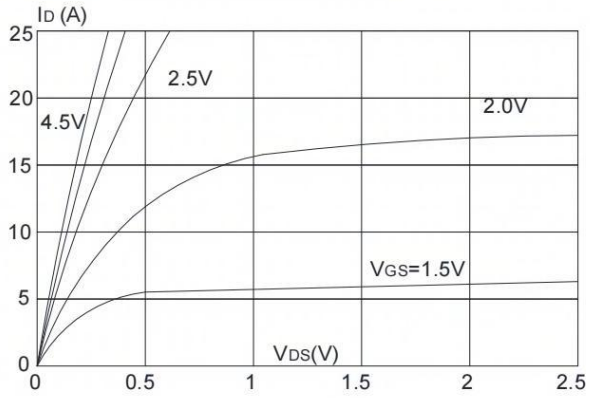


Figure 2: Typical Transfer Characteristics

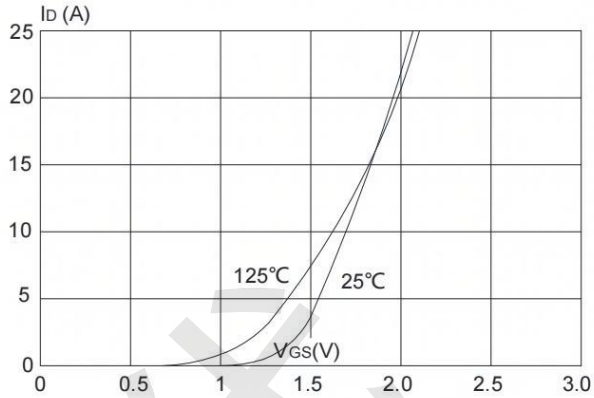


Figure 3: On-resistance vs. Drain Current

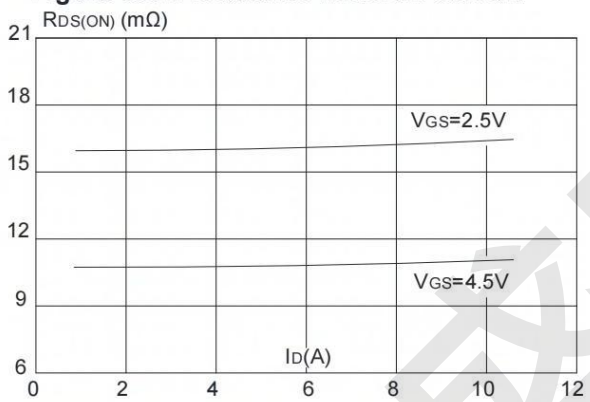


Figure 4: Body Diode Characteristics

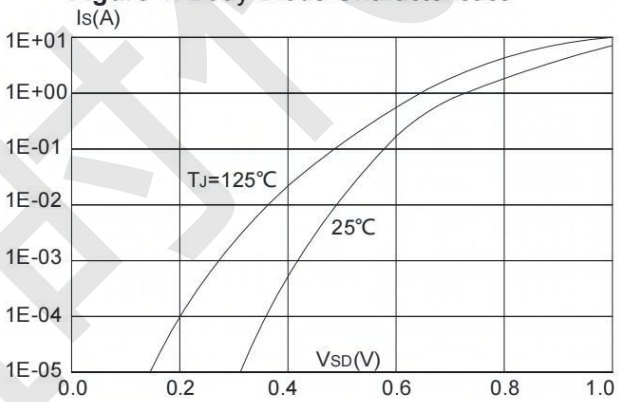


Figure 5: Gate Charge Characteristics

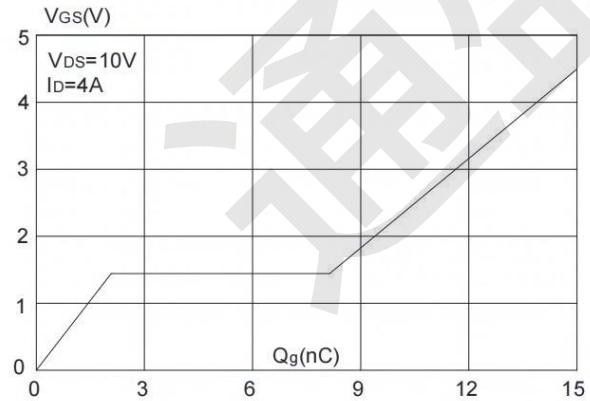
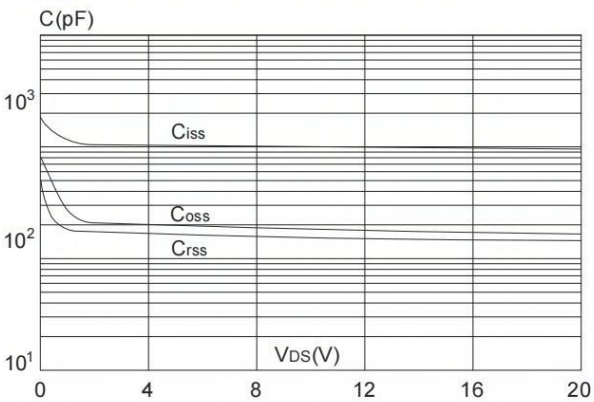


Figure 6: Capacitance Characteristics



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

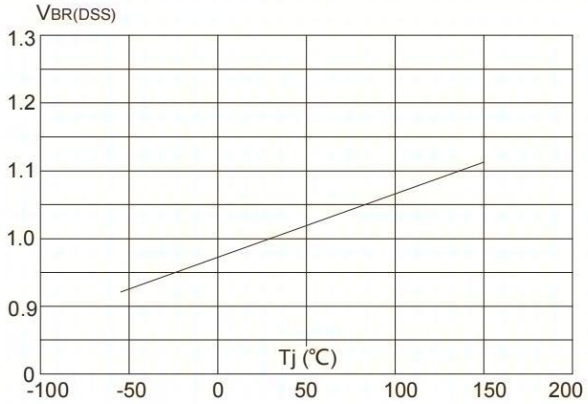


Figure 8: Normalized on Resistance vs. Junction Temperature

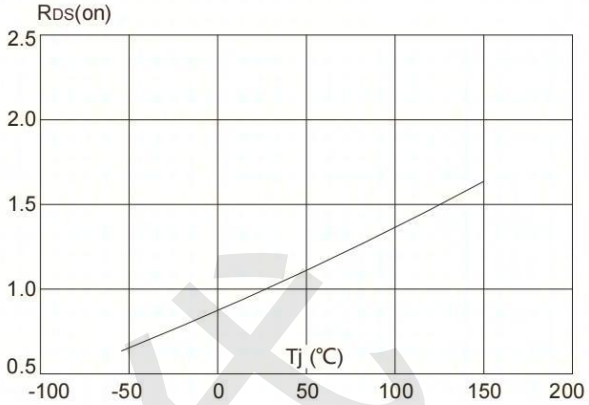


Figure 9: Maximum Safe Operating Area

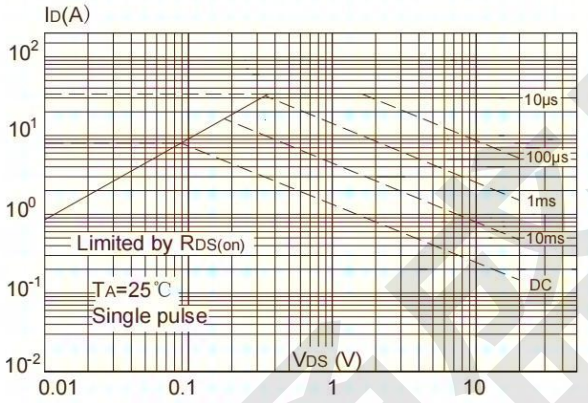


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

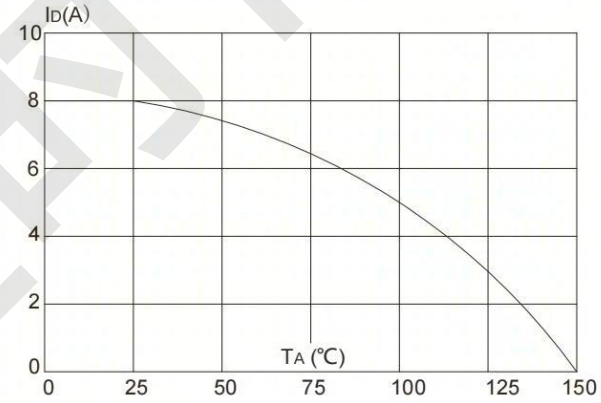
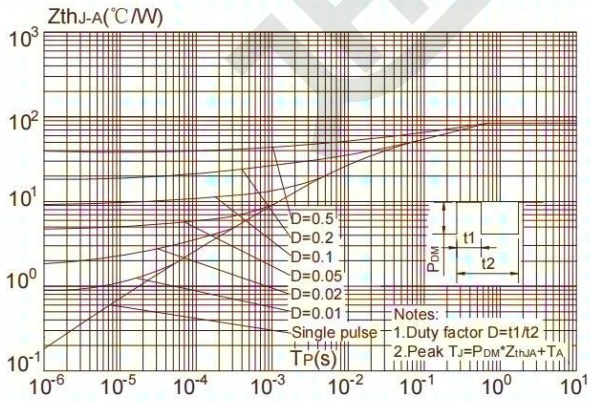
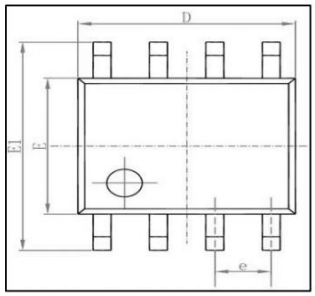
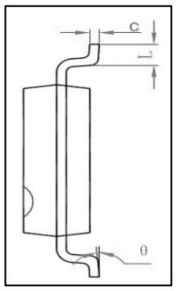
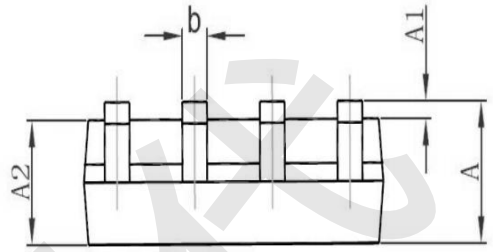


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient









Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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