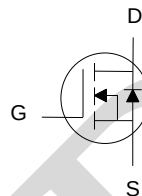
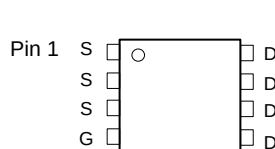
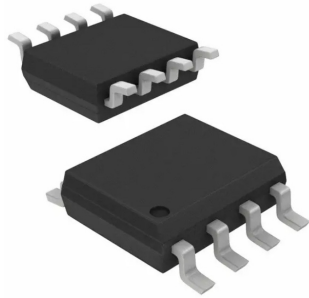


SGT N-channel Power MOSFET

MTR008N06P8 SOP8



Features

- Low on $r_{DS(on)}$ resistance
- High power package (SOP8)
- SGT N-channel Power MOSFET

Applications

- Load Switch for Portable Devices
- DC/DC Converter

Maximum ratings, at $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter		Rating	Unit
V(BR)DSS	Drain-Source breakdown voltage		60	V
VGS	Gate-Source voltage		±20	V
IS	Diode continuous forward current	T _C =25°C	18	A
ID	Continuous drain current @VGS=10V	T _C =25°C	18	A
		T _C =100°C	12	A
IDM	Pulse drain current tested ①	T _C =25°C	70	A
IDSM	Continuous drain current @VGS=10V	T _A =25°C	18	A
		T _A =70°C	12	A
EAS	Avalanche energy, single pulsed ②		20	mJ
PD	Maximum power dissipation	T _C =25°C	37	W
		T _C =100°C	15	W
PDSM	Maximum power dissipation ③	T _A =25°C	4.2	W
		T _A =70°C	2.7	W
TSTG,TJ	Storage and Junction Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
R _{θJC}	Thermal Resistance, Junction-to-Case	3.4	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	30	°C/W

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
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Static Electrical Characteristics @ T_J=25°C (unless otherwise stated)

V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	68	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current (T _J =125°C)	V _{DS} =60V, V _{GS} =0V	--	--	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.9	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance ④	V _{GS} =10V, I _D =20A	--	7.3	8.0	mΩ
		V _{GS} =4.5V, I _D =20A	--	10	12	mΩ

Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)

C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	995	1170	1345	pF
C _{oss}	Output Capacitance		500	585	670	pF
C _{rss}	Reverse Transfer Capacitance		--	20	30	pF
R _g	Gate Resistance	f=1MHz	--	1.3	--	Ω
Q _g (10V)	Total Gate Charge	V _{DS} =30V, I _D =30A, V _{GS} =10V	--	22	--	nC
Q _g (4.5V)	Total Gate Charge		--	12	--	nC
Q _{gs}	Gate-Source Charge		--	4.2	--	nC
Q _{gd}	Gate-Drain Charge		--	5.5	--	nC

Switching Characteristics

Td(on)	Turn-on Delay Time	V _{DD} =30V, I _D =30A, R _G =3Ω, V _{GS} =10V	--	7.4	--	ns
Tr	Turn-on Rise Time		--	43	--	ns
Td(off)	Turn-Off Delay Time		--	18	--	ns
Tf	Turn-Off Fall Time		--	6.2	--	ns

Source- Drain Diode Characteristics@ T_J = 25°C (unless otherwise stated)

VSD	Forward on voltage	I _{SD} =20A, V _{GS} =0V	--	0.9	1.3	V
Trr	Reverse Recovery Time	T _J =25°C, I _{SD} =20A , V _{GS} =0V	--	26	--	ns
Qrr	Reverse Recovery Charge	di/dt=100A/μs	--	15	--	nC

NOTE: ① Repetitive rating; pulse width limited by max junction temperature.

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.5mH, R_G = 25Ω, I_{AS} = 9A, V_{GS} = 10V. Part not recommended for use above this value

③ The power dissipation P_{DSM} is based on R_{θJA} and the maximum allowed junction temperature of 150°C.

④ Pulse width ≤ 380μs; duty cycle ≤ 2%.

Typical Characteristics

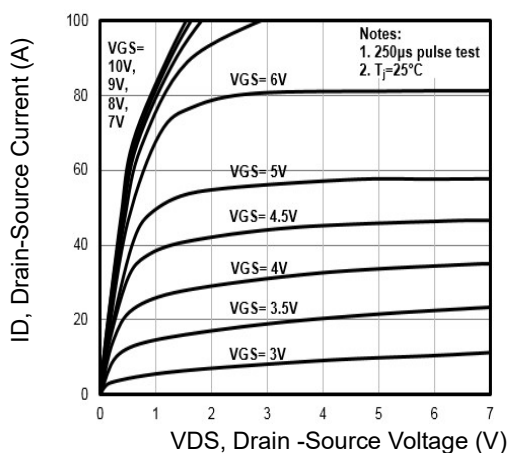


Fig1. Typical Output Characteristics

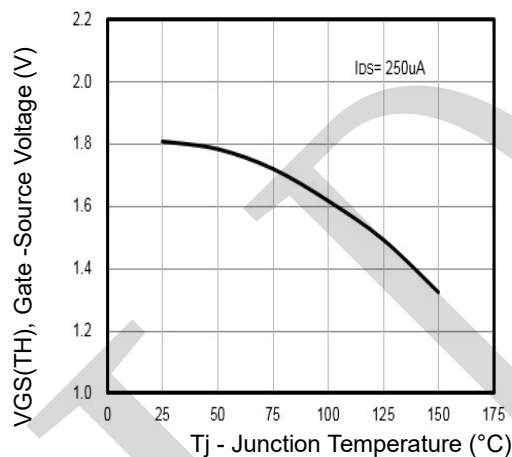


Fig2. $V_{GS(TH)}$ Gate-Source Voltage Vs. T_j

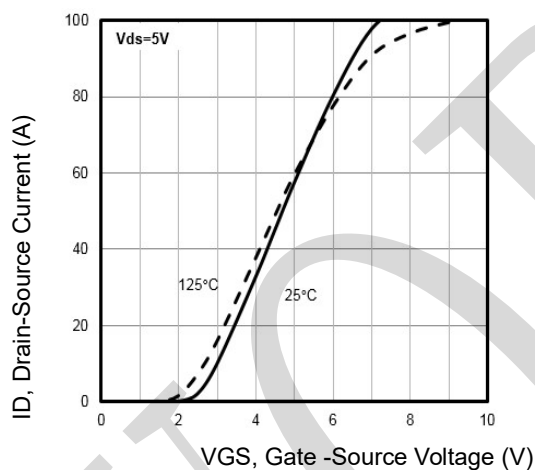


Fig3. Typical Transfer Characteristics

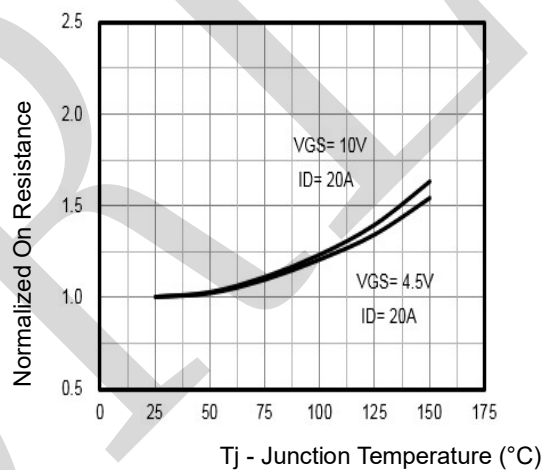


Fig4. Normalized On-Resistance Vs. T_j

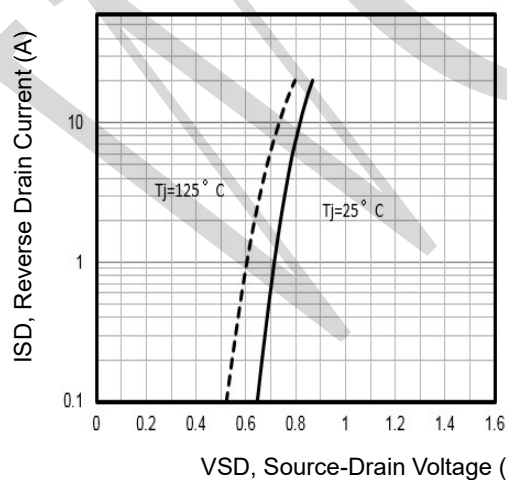


Fig5. Typical Source-Drain Diode Forward Voltage

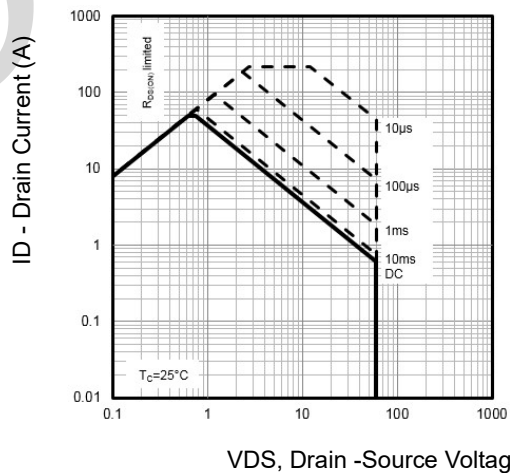


Fig6. Maximum Safe Operating Area

Typical Characteristics

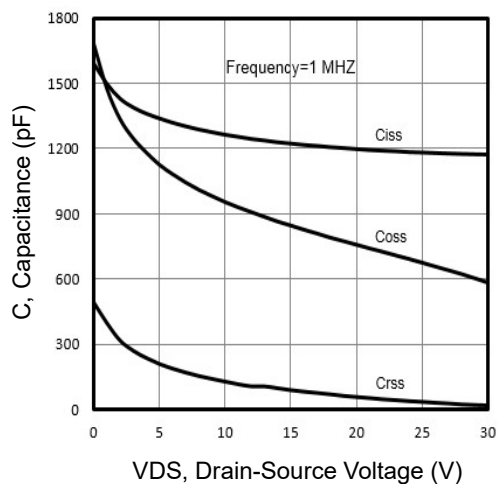


Fig7. Typical Capacitance Vs. Drain-Source Voltage

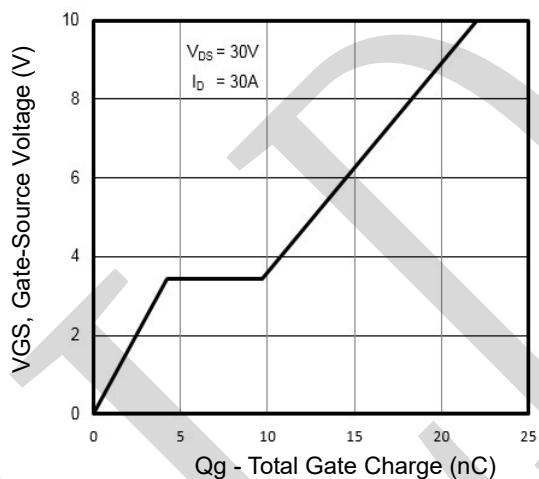


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

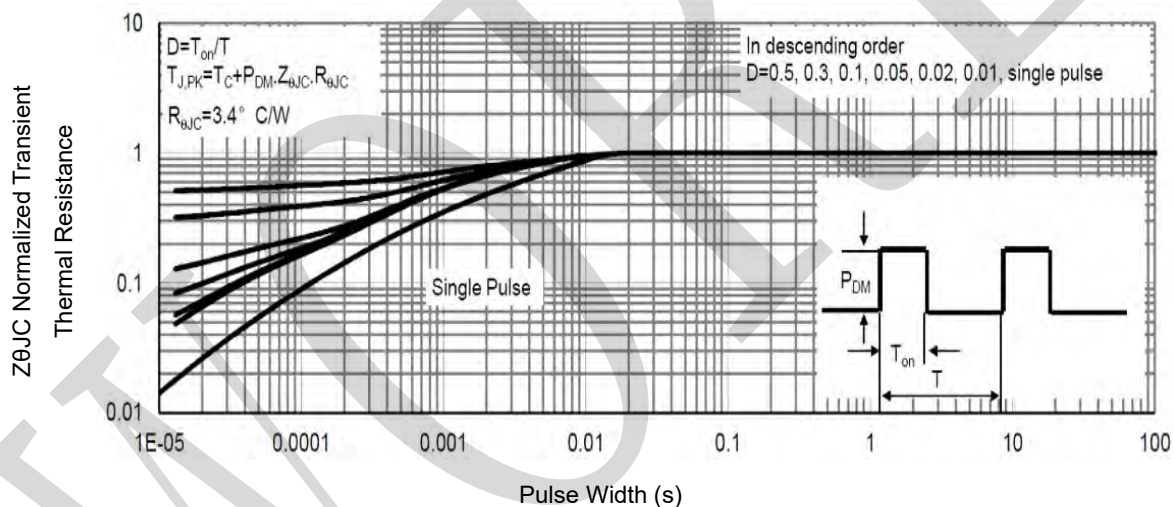


Fig9. Normalized Maximum Transient Thermal Impedance

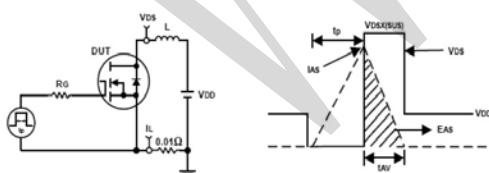


Fig10. Unclamped Inductive Test Circuit and waveforms

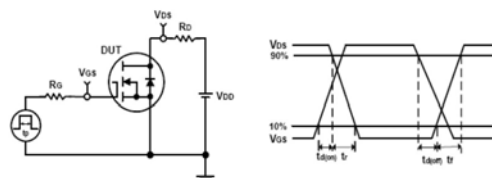
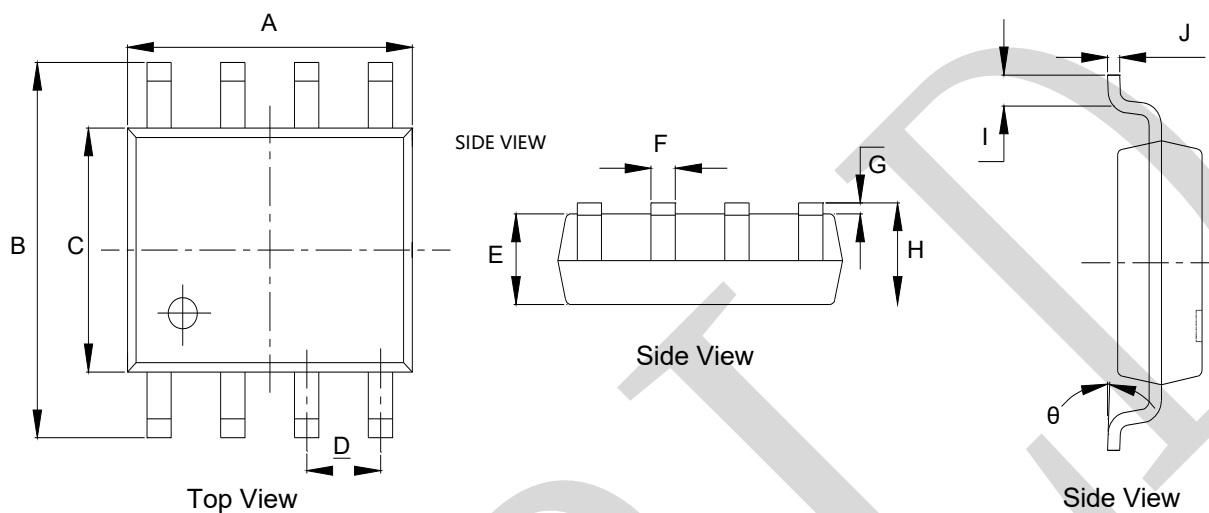


Fig11. Switching Time Test Circuit and waveforms

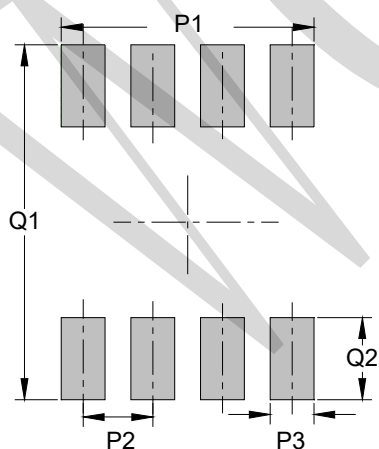
PACKAGE OUTLINE DIMENSIONS



SOP8 mechanical data

UNIT		A	B	C	D	E	F	G	H	I	J	θ
mm	min	4.70	5.70	3.80	1.27 TYP	1.25	0.33	0.10	1.30	0.40	0.17	0°
	max	5.10	6.30	4.00		1.55	0.51	0.25	1.80	1.27	0.25	8°
mil	min	185.0	224.4	149.6	50.0 TYP	49.2	13.0	3.9	51.1	15.7	6.7	0°
	max	200.8	248.0	157.5		61.1	20.1	9.9	70.9	50.0	9.8	8°

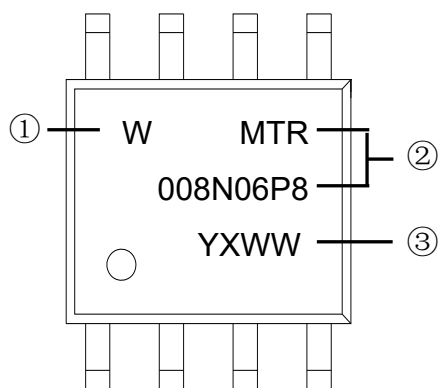
SOP8 Suggested Pad Layout



UNIT		P1	P2	P3	Q1	Q2
mm	min	4.61	1.27	0.80	6.50	1.50
mil	min	181.5	50.0	31.5	255.9	59.0

PACKAGE OUTLINE DIMENSIONS

Marking Information



①W : Company's trademark

②Product model : MTR008N06P8

③PDC information :

Y X WW

WW:Week code(01 to 53)

X:Internal identification code

Y:Year code(ex:0=2020)