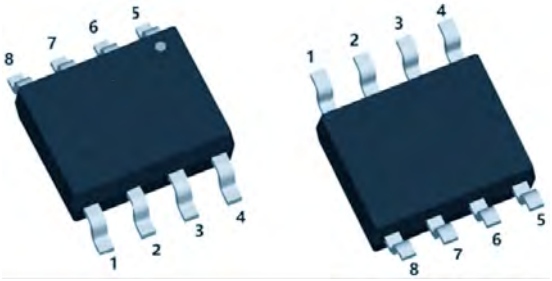
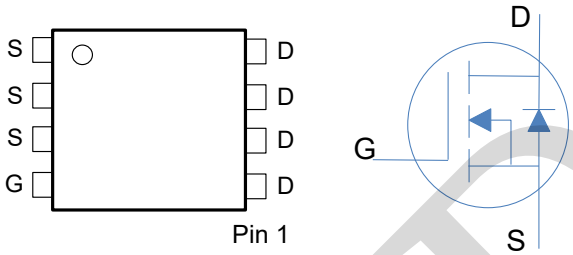
SGT N-channel Power MOSFET

MTR015N06P8 SOP8





V_{DS}	60	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	12	mΩ
I_D	15	A

Features

1、Low on – resistance

2、High power package (SOP8)

3、SGT N-channel Power MOSFET

4、Halogen free

Applications

1、Load Switch for Portable Devices

2、DC/DC Converter

Maximum ratings, at T_A =25°C, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		60	V
V_{GS}	Gate-Source voltage		±20	V
I_D	Continuous drain current @VGS=10V	T_C=25°C	15	A
		T_C=100°C	8	A
I_{DM}	Pulse drain current tested ①	T_C=25°C	60	A
EAS	Avalanche energy, single pulsed ②		20	mJ
P_D	Maximum power dissipation	T_C=25°C	6.3	W
		T_C=100°C	2.5	W
T_{STG},T_J	Storage and Junction Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	20	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	60	°C/W

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_j=25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V,V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current (T_j =125℃)	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	1.62	2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance ④	V_{GS}=10V, I_D=10A	--	12	15	mΩ
		V_{GS}=4.5V, I_D=10A	--	16.5	22	mΩ
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=10A	--	26	--	S
V_{SD}	Diode forward voltage drop.	I_S=20A, V_{GS}=0V	--	0.9	1.3	V
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=30V,V_{GS}=0V, f=1MHz	--	657	--	pF
C_{oss}	Output Capacitance		--	227	--	pF
C_{rss}	Reverse Transfer Capacitance		--	13	--	pF
R_g	Gate Resistance	VDS=0V, Scan F mode	--	2.5	--	Ω
$Q_{g\,(10V)}$	Total Gate Charge	V_{DS}=30V,I_D=10A, V_{GS}=10V	--	13.2	--	nC
Q_{gs}	Gate-Source Charge		--	1.87	--	nC
Q_{gd}	Gate-Drain Charge		--	3.33	--	nC

Switching Characteristics

Td(on)	Turn-on Delay Time	V_{DD}=30V, R_D=5Ω, R_G=10Ω, V_{GS}=10V	--	6	--	ns
Tr	Turn-on Rise Time		--	14	--	ns
Td(off)	Turn-Off Delay Time		--	12	--	ns
Tf	Turn-Off Fall Time		--	3	--	ns

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,Part not recommended for use above this value

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

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

Typical Characteristics

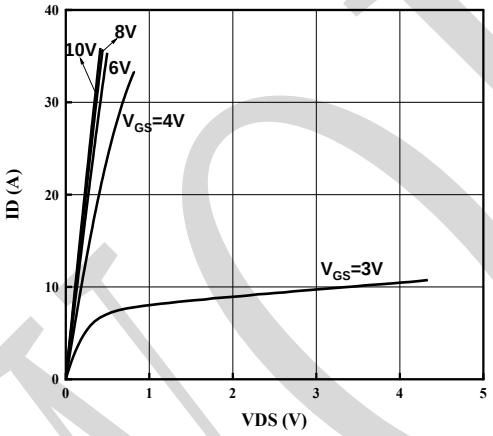


Fig1. Typical Output Characteristics

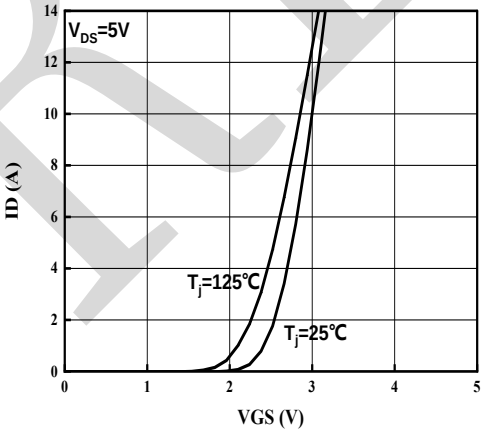


Fig2. Typical Transfer Characteristics

Typical Characteristics

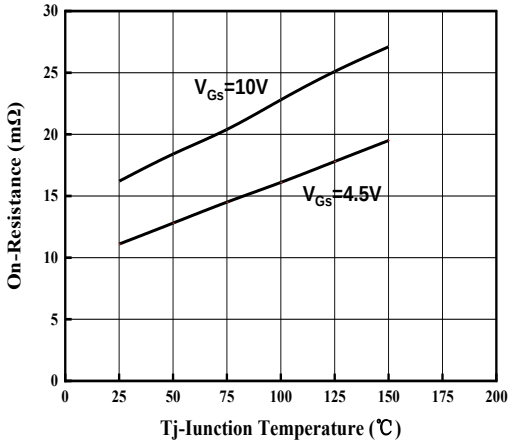


Fig3. On-Resistance Vs. Temperature

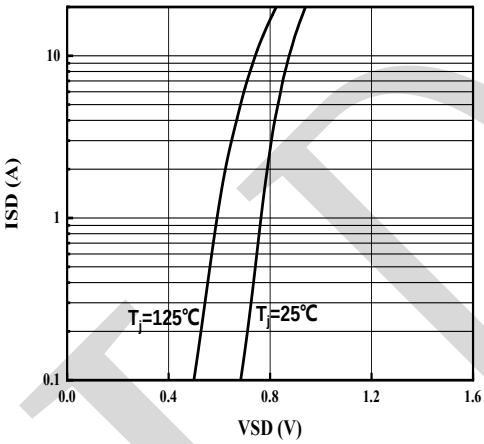


Fig4. Typical Source-Drain Diode Forward Voltage

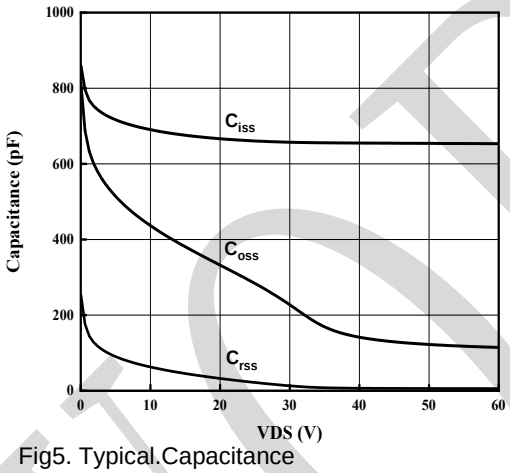


Fig5. Typical.Capacitance

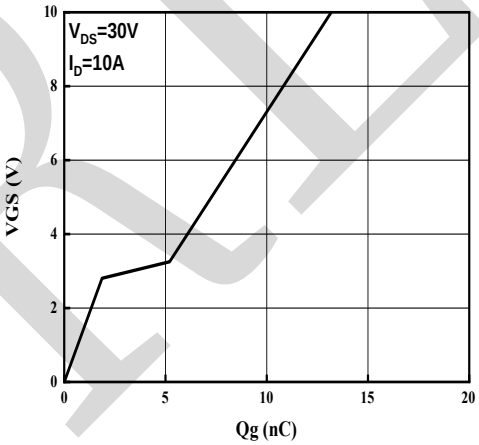


Fig6. Typical.Gate Charge

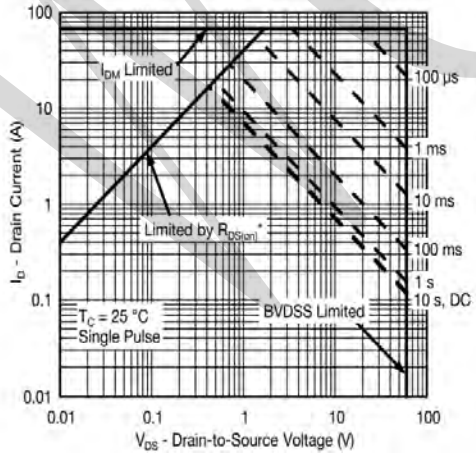


Fig7. Safe Operating Area

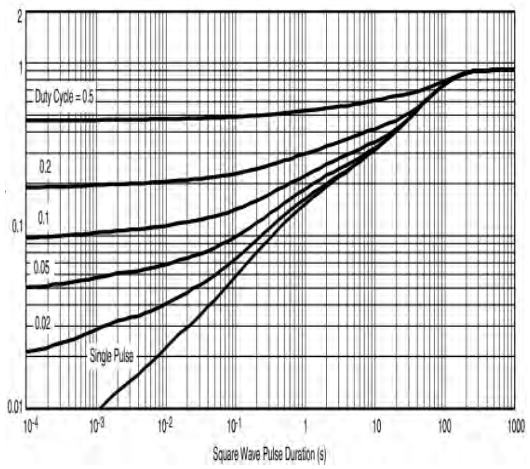
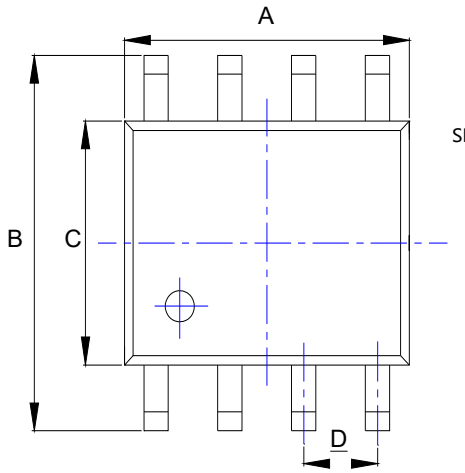
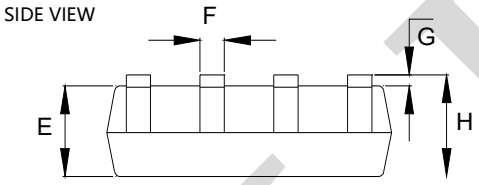


Fig8. Normalized transient thermal impedance

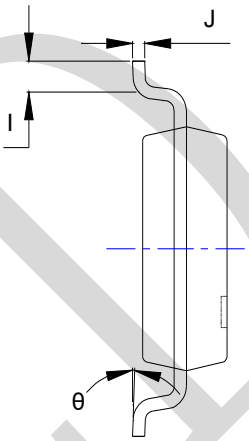
PACKAGE OUTLINE DIMENSIONS



Top View



Side View

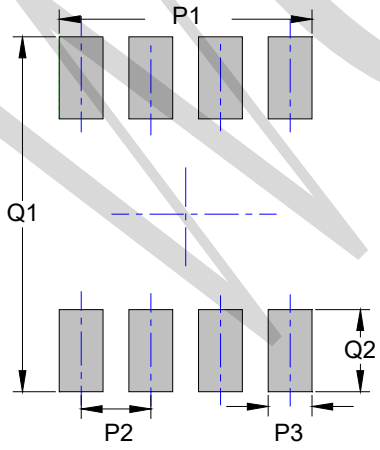


Side View

SOP8 mechanical data

UNIT		A	B	C	D	E	F	G	H	I	J	θ
mm	min	4.80	5.80	3.80	1.27 TYP	1.35	0.33	0.10	1.35	0.40	0.17	0°
	max	5.00	6.20	4.00		1.55	0.51	0.25	1.75	1.27	0.25	8°
mil	min	157.4	228.3	149.6	50.0 TYP	53.1	13.0	3.9	53.1	15.7	6.7	0°
	max	196.9	244.1	157.5		61.1	20.1	9.9	68.9	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