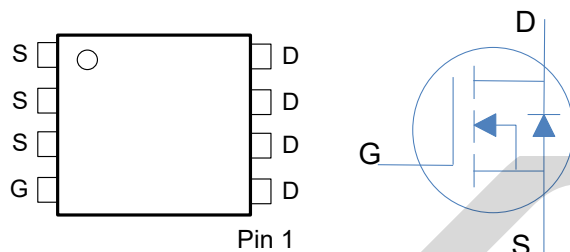
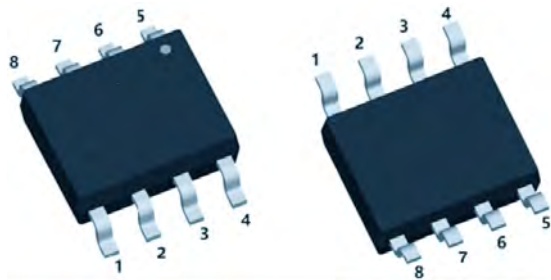


SGT N-channel Power MOSFET

MTR16R5N06P8 SOP8



V_{DS}	60	V
$R_{DS(on),MAX}@ V_{GS}=10\text{ V}$	16.5	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 $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter		Rating	Unit
V(BR)DSS	Drain-Source breakdown voltage		60	V
VGS	Gate-Source voltage		±20	V
ID	Continuous drain current @VGS=10V	Tc =25°C	15	A
		Tc =100°C	8	A
IDM	Pulse drain current tested ①	Tc =25°C	60	A
EAS	Avalanche energy, single pulsed ②		20	mJ
PD	Maximum power dissipation	Tc =25°C	6.3	W
		Tc =100°C	2.5	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	20	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	60	°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	--	--	V
IDSS	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
IGSS	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.62	2.5	V
RDS(on)	Drain-Source On-State Resistance ④	V _{GS} =10V, I _D =10A	15	--	16.5	mΩ
		V _{GS} =4.5V, I _D =10A	--	--	25	mΩ
gFS	Forward Transconductance	V _{DS} =5V, I _D =10A	--	26	--	S
VSD	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_{θJA} and the maximum allowed junction temperature of 150°C.

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

Typical Characteristics

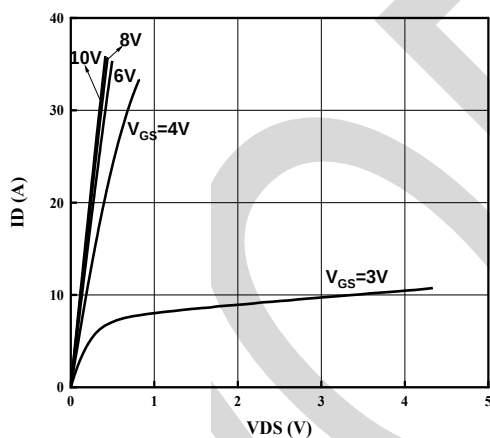


Fig1. Typical Output Characteristics

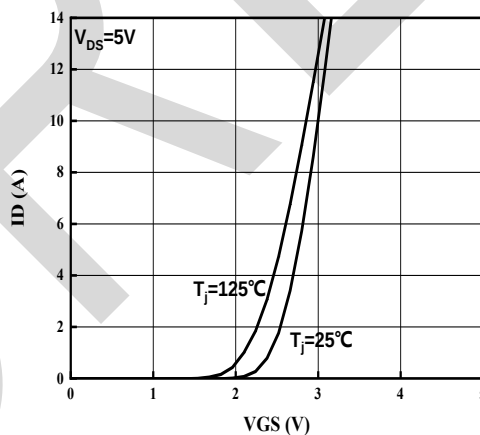


Fig2. Typical Transfer Characteristics

Typical Characteristics

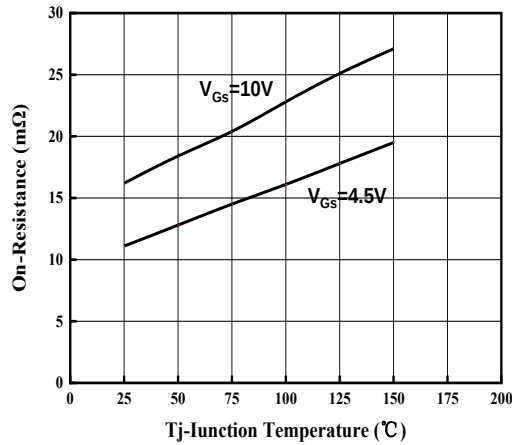


Fig3. On-Resistance Vs. Temperature

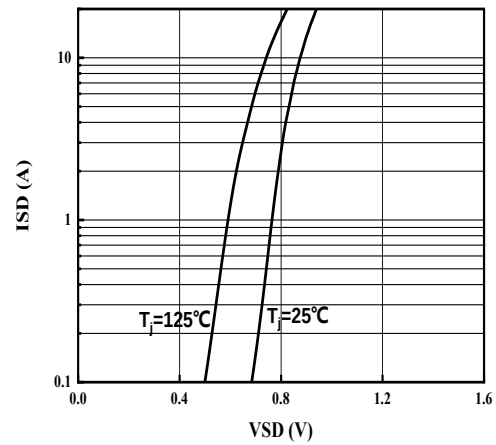


Fig4. Typical Source-Drain Diode Forward Voltage

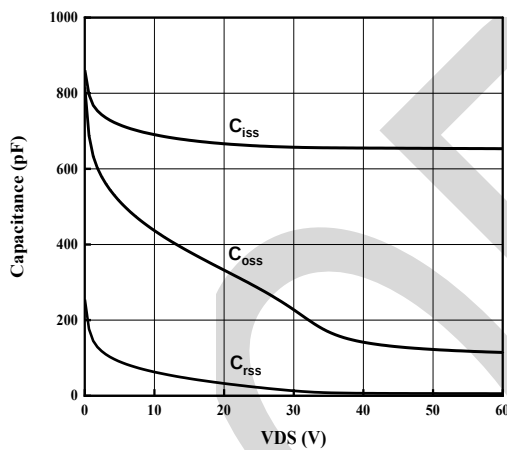


Fig5. Typical Capacitance

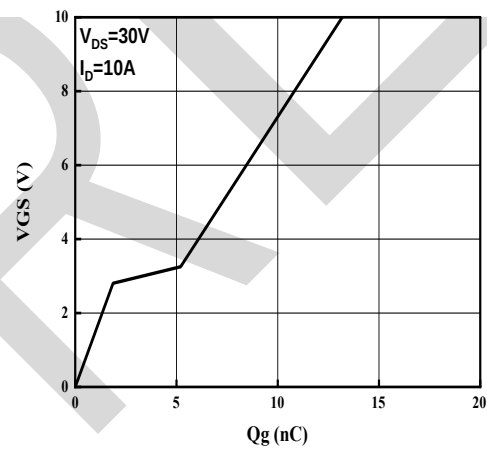


Fig6. Typical Gate Charge

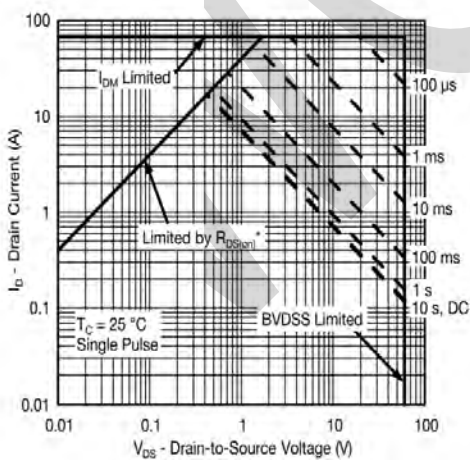


Fig7. Safe Operating Area

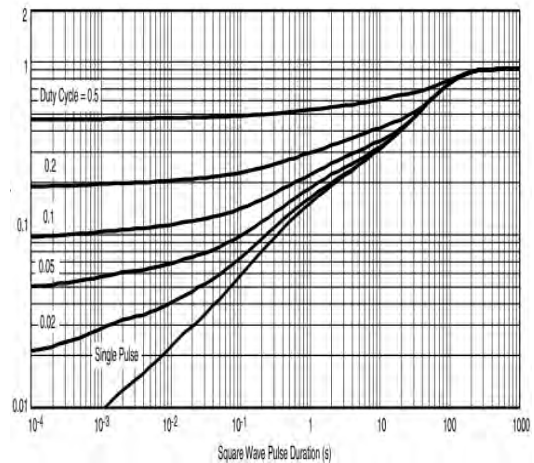
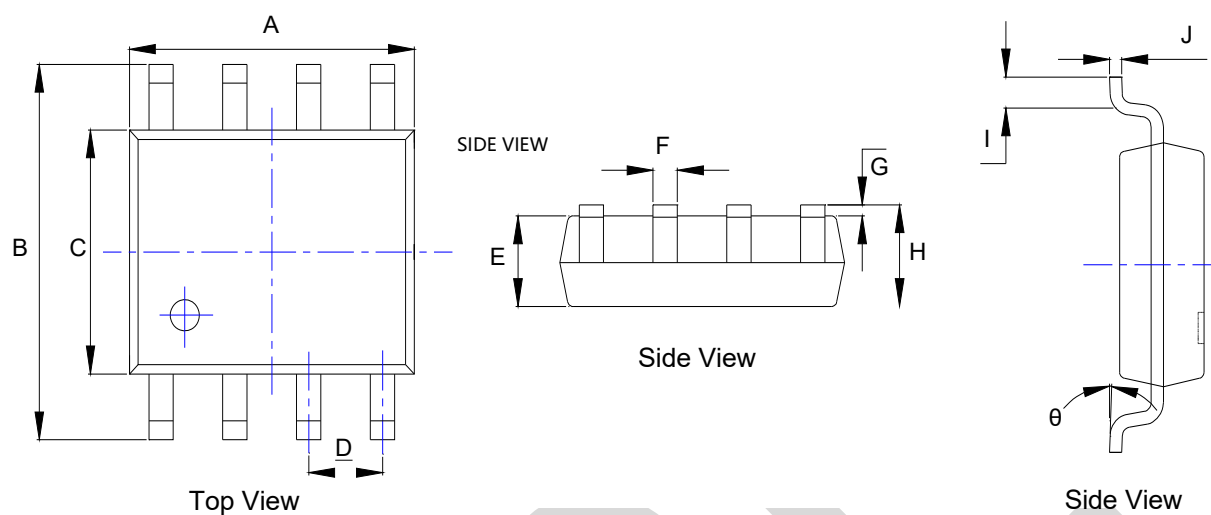


Fig8. Normalized transient thermal impedance

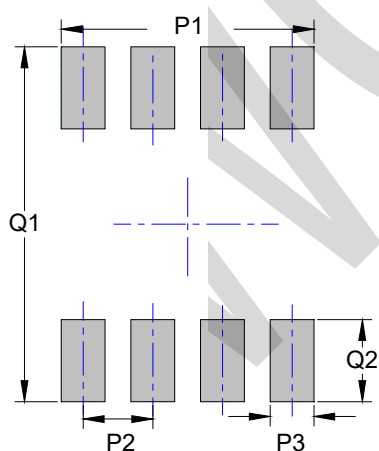
PACKAGE OUTLINE DIMENSIONS



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