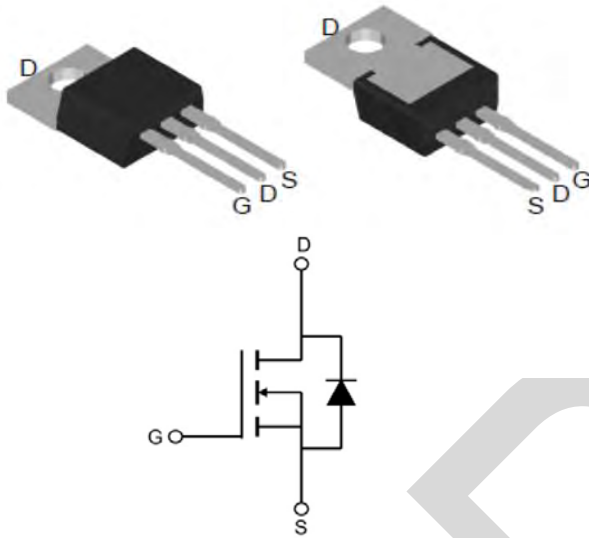


SGT N-channel Power MOSFET

TO-220AB
MTR7R5N15CT



V_{DS}	150	V
$R_{DS(on),TYP}@ V_{GS}=10\text{ V}$	6.5	m Ω
I_D	140	A

Features

- 1、Low on – resistance
- 2、Package TO-220AB
- 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		150	V
VGS	Gate-Source voltage		±20	V
ID	Continuous drain current @VGS=10V	T _C =25°C	140	A
		T _C =100°C	90	A
IDM	Pulse drain current tested	T _C =25°C	500	A
EAS	Avalanche energy, single pulsed		506	mJ
PD	Maximum power dissipation	T _C =25°C	210	W
TSTG,TJ	Storage and Junction Temperature Range		-55 to 150	°C

- 1) mited by T_j max. Maximum duty cycle $D=0.75$.
- 2) lse width t_p limited by $T_{j,max}$.
- 3) $V_{DD}=50\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$, Starting $T_j=25^\circ\text{C}$.

Thermal Characteristics

Symbol	Parameter	Typical	Unit
R θ JC	Thermal Resistance, Junction-to-Case	0.5	°C/W
R θ JA	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	150	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0V	--	--	1	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	2.0	3.0	4.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =20A	--	6.5	7.5	mΩ

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

C _{iss}	Input Capacitance	V _{DS} =75V, V _{GS} =0V , f=1MHz	--	5242	--	pF
C _{oss}	Output Capacitance		--	415	--	pF
C _{rss}	Reverse Transfer Capacitance		--	10	--	pF
Q _g (10V)	Total Gate Charge	V _{DS} =75V, I _D =20A , V _{GS} =10V	--	72	--	nC
Q _{gs}	Gate-Source Charge		--	18	--	nC
Q _{gd}	Gate-Drain Charge		--	10	--	nC

Switching Characteristics

Td(on)	Turn-on Delay Time	$V_{DD}=75V, I_D=100A,$ $V_{GS}=10V, R_L=1.6\Omega,$	--	22	--	ns
Tr	Turn-on Rise Time		--	115	--	ns
Td(off)	Turn-Off Delay Time		--	45	--	ns
Tf	Turn-Off Fall Time		--	105	--	ns

Source- Drain Diode Characteristics@ $T_j = 25^\circ C$ (unless otherwise stated)

ISD	Source-drain Current(Body Diode)		--	140	--	A
ISM	Pulsed Source-Drain Current (Body Diode)		--	500	--	A
VSD	Forward on voltage (Note1)	$I_F=10A,$ $V_{GS}=0V$	--	--	0.76	V
Trr	Reverse Recovery Time (Note1)	$I_F=100A,$ $di/dt=100A/\mu s$	--	45	--	ns
Qrr	Reverse Recovery Charge (Note1)		--	12	--	nC
Ton	Forward Turn-on Time	Intrinsic turn-on time is negligible(turn-on is dominated by L_S+L_D)				

Typical Characteristics

Diagram 1: Power dissipation

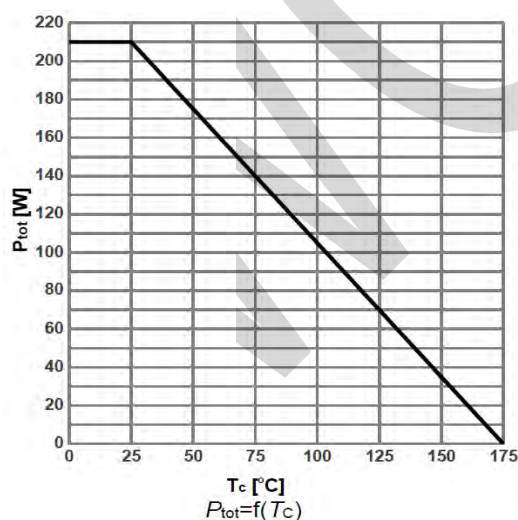
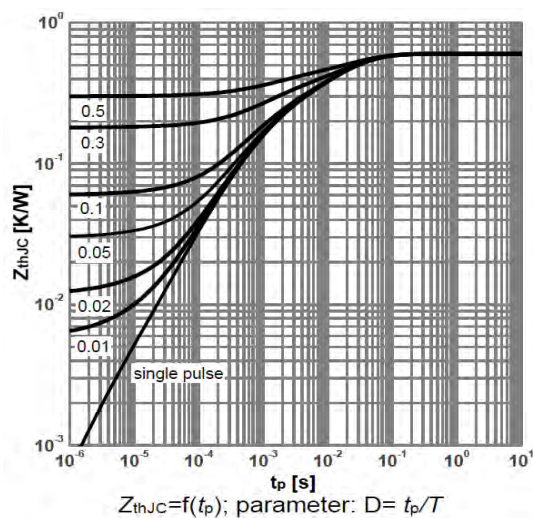


Diagram 2: Max. transient thermal impedance



Typical Characteristics

Diagram 3: Safe operating area

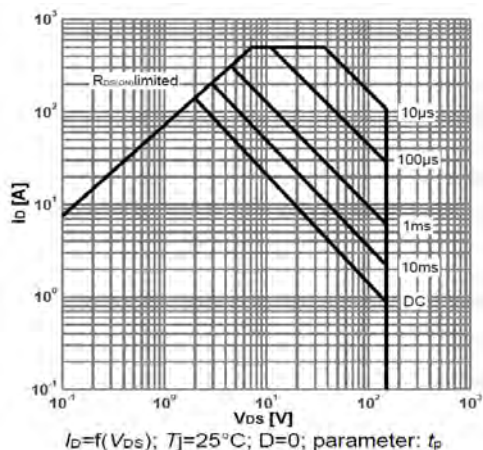


Diagram 4: Typ. output characteristics

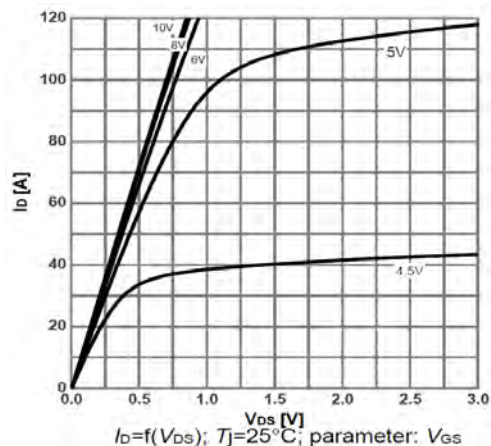


Diagram 5: Typ. transfer characteristics

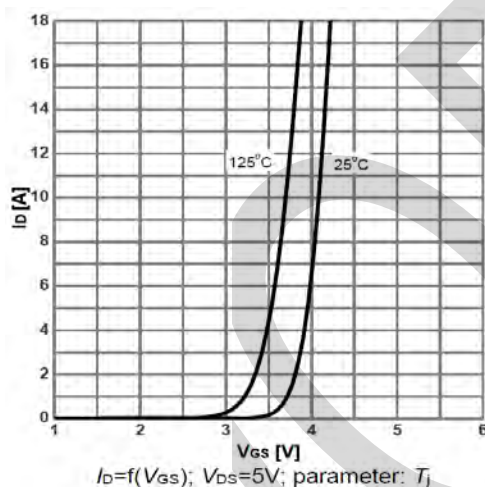


Diagram 6: Gate threshold voltage vs. Junction temperature

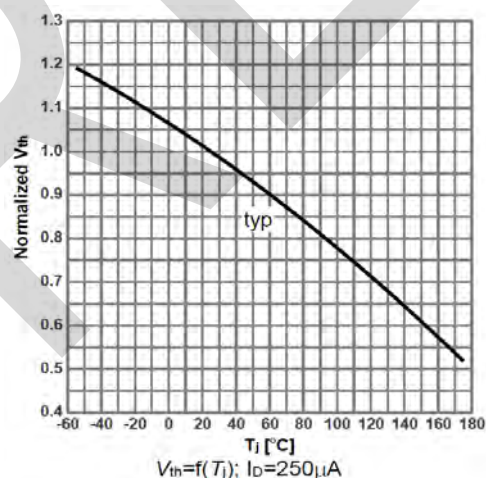


Diagram 7: On-state resistance vs. Drain current

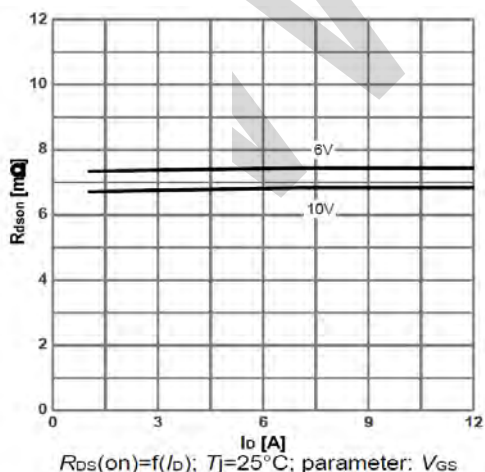
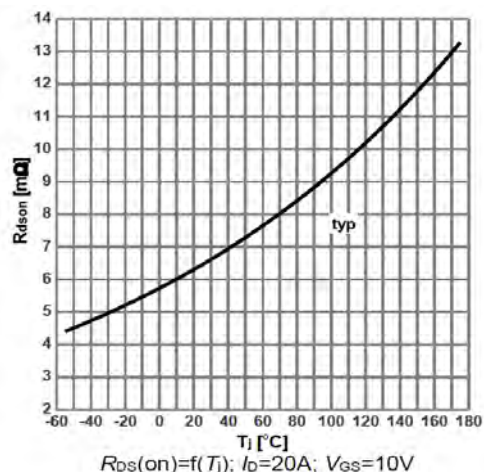


Diagram 8: On-state resistance vs. Junction temperature



Typical Characteristics

Diagram 9: Forward characteristics of reverse diode

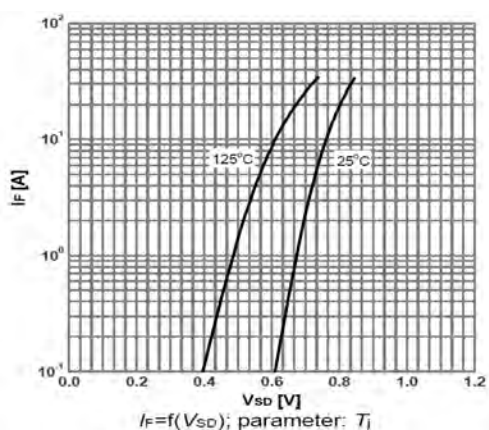


Diagram 10: On-state resistance vs. V_{gs} characteristics

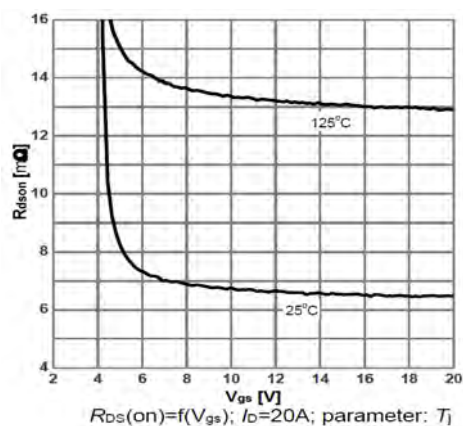


Diagram 11: Breakdown Voltage Variation vs. Temperature

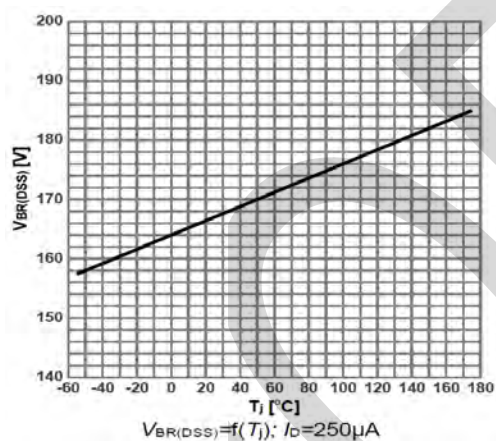


Diagram 12: Maximum Drain Current

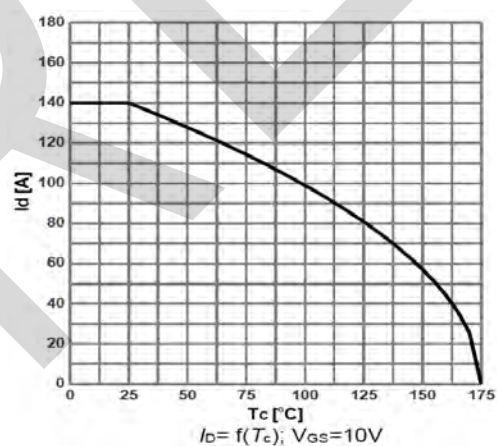


Diagram 13: Typ. capacitances

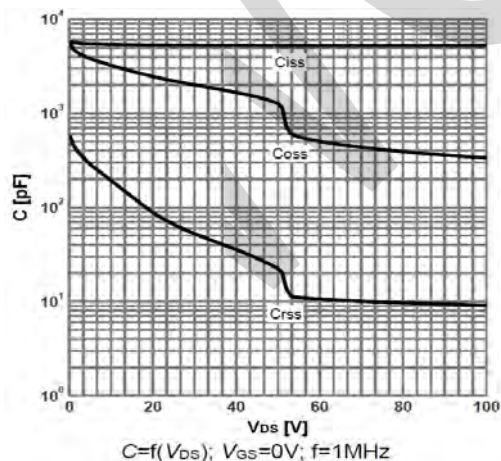
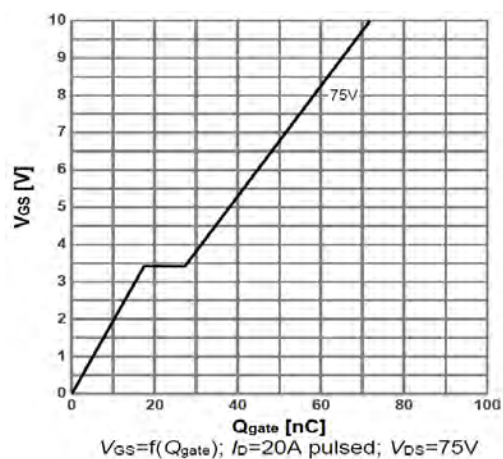


Diagram 14: Typ. gate charge



- 技术要求:
1. 塑封体中心与引线框架中心偏差小于或等于0.05,
 2. 塑封体不准有缺损、气泡、气孔、裂纹等缺陷。
 3. 塑封体表面为光面
 4. 未注脱模斜度小于或等于 3° 。
 5. 未注公差 ± 0.05 , 未注圆角R0.15 (max)