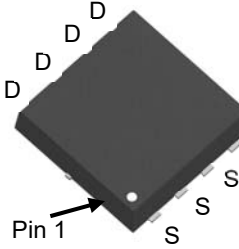
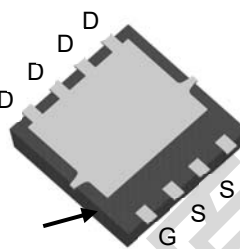


SGT N-Channel Enhancement-Mode MOSFET (40V,65A)

PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Typ.
40V	65A	6.5@ $V_{GS} = 10V$, $I_D=30A$
		8.5@ $V_{GS} = 4.5V$, $I_D=10A$

Features	Applications
- SGT Technology - Exceptional on-resistance and maximum DC current capability - Excellent $Q_g \times R_{DS(ON)}$ product (FOM) - Lead (Pb) -free and halogen-free	- Isolated DC/DC Converters in Telecom and Industrial - Power Tool Application - DC/DC Converters in Computing, Servers, and POL

PDFN5*6-8L Top View  Bottom View  Pin 1		TOP Marking  ET6460T XXXXXX XXXXXX:D/C
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Absolute Maximum Ratings ($T_A=25^\circ C$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current (Continuous)@ $T_A=25^\circ C$	65	A
	Drain Current (Continuous)@ $T_A=75^\circ C$	40	A
I_{DM}	Drain Current (Pulsed) ^a	250	A
P_D	Total Power Dissipation @ $T_c=25^\circ C$	48	W
	Total Power Dissipation @ $T_c=75^\circ C$	19	W
EAS	Avalanche energy, single pulsed	145	mJ
I_S	Maximum Diode Forward Current	40	A
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	45	$^\circ C/W$

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

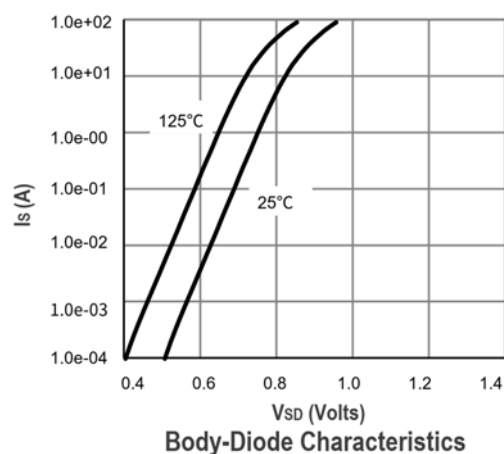
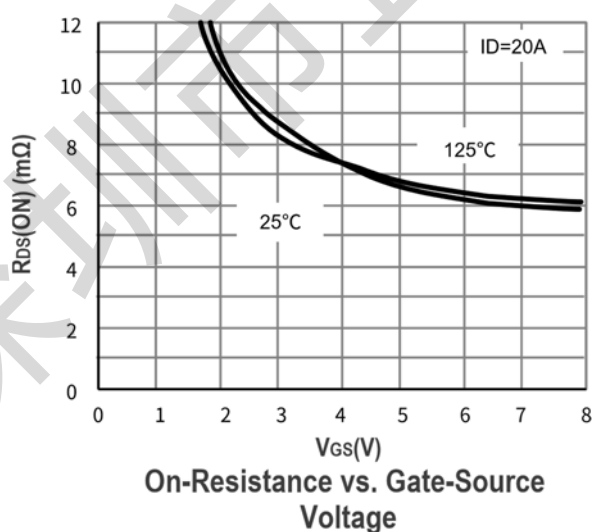
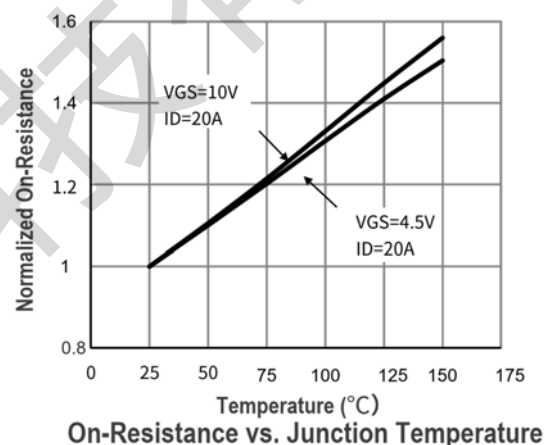
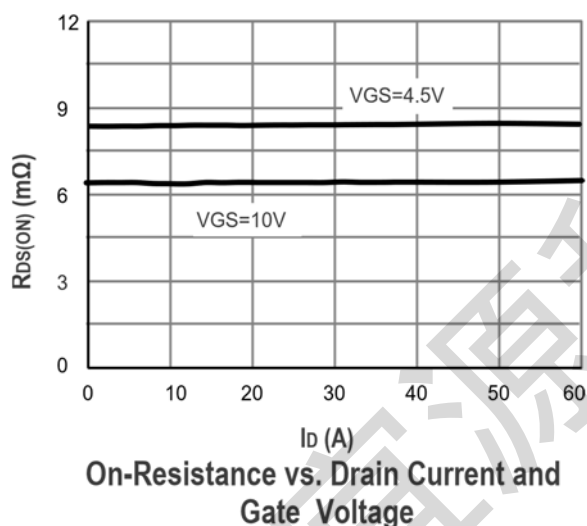
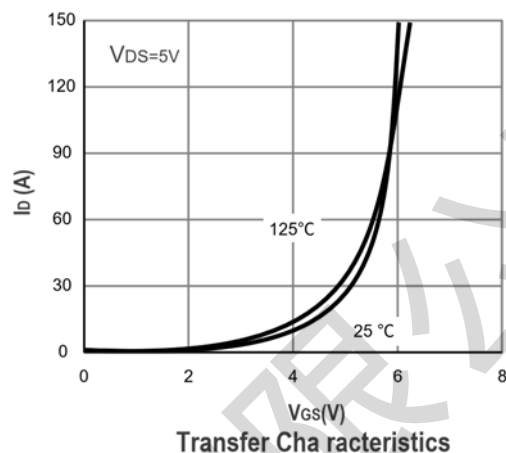
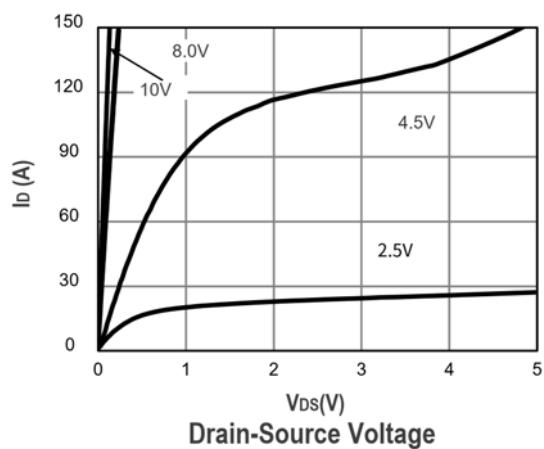
b: 1-in² 2oz Cu PCB board

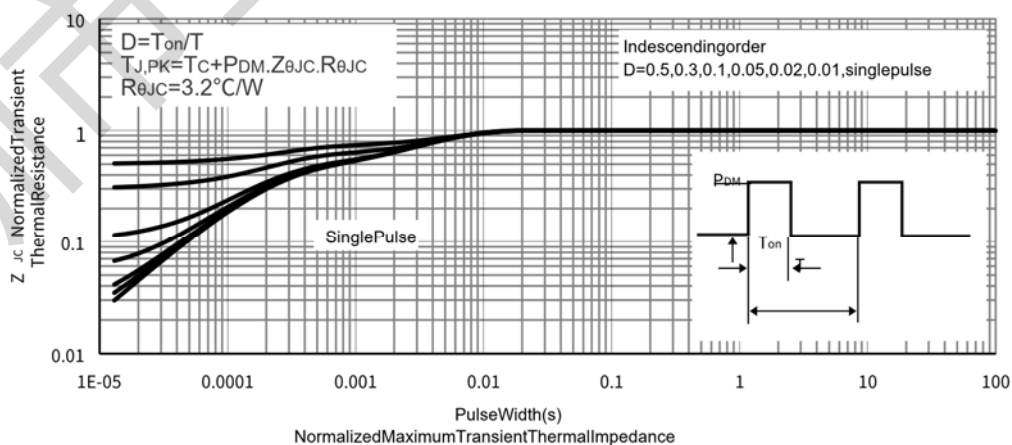
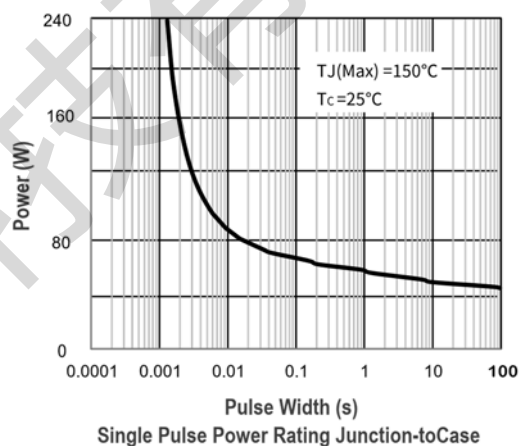
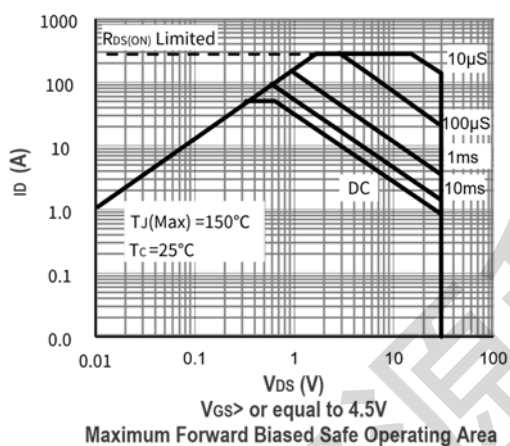
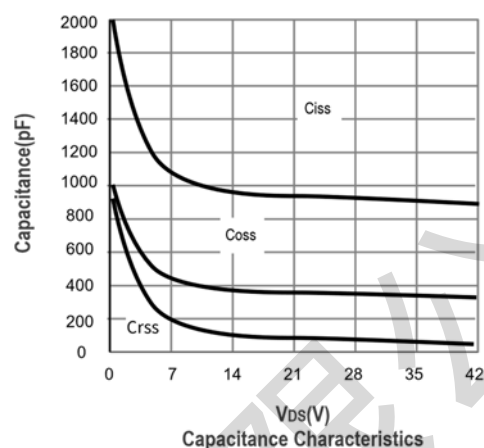
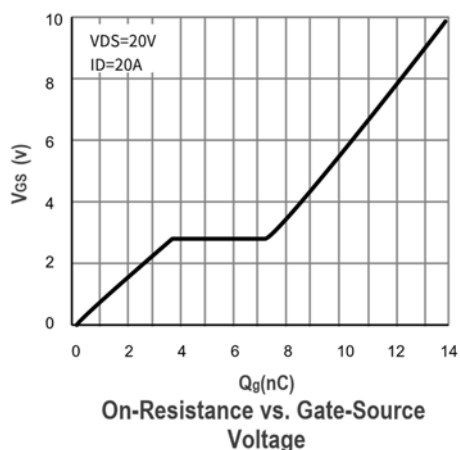
Electrical Characteristics (TA=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	40	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
• On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0	1.6	2.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =30A	-	6.5	7.5	mΩ
		V _{GS} =4.5V, I _D =10A	-	8.5	10	
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =20A		80		S
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	-	975	-	PF
C _{oss}	Output Capacitance		-	335	-	
C _{rss}	Reverse Transfer Capacitance		-	29	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =20V, I _D =20A, V _{GS} =10V	-	14	-	nC
Q _{gs}	Gate-Source Charge		-	3.8	-	
Q _{gd}	Gate-Drain Charge		-	3	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =20V, R _L =15Ω, I _D =20A, V _{GEN} =10V, R _G =3Ω	-	17	-	nS
t _r	Turn-on Rise Time		-	2.2	-	
t _{d(off)}	Turn-off Delay Time		-	2.6	-	
t _f	Turn-off Fall Time		-	3	-	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =20A	-	-	1.2	V
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1	2	Ω

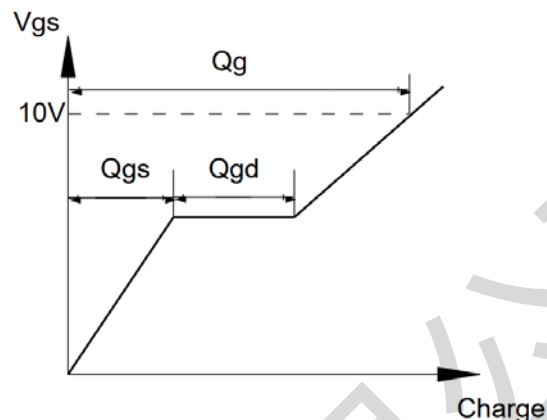
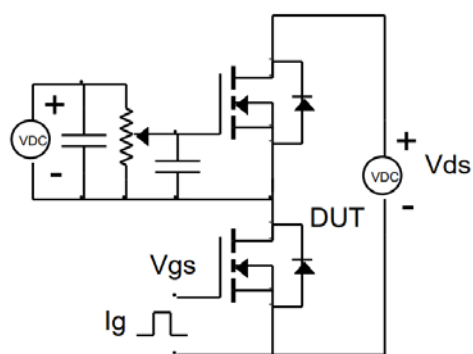
Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

Typical Characteristics Curves (Ta=25°C, unless otherwise note)

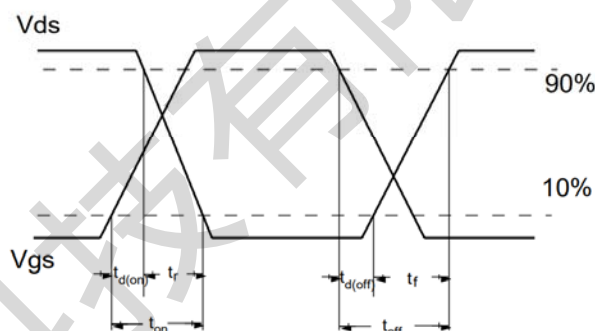
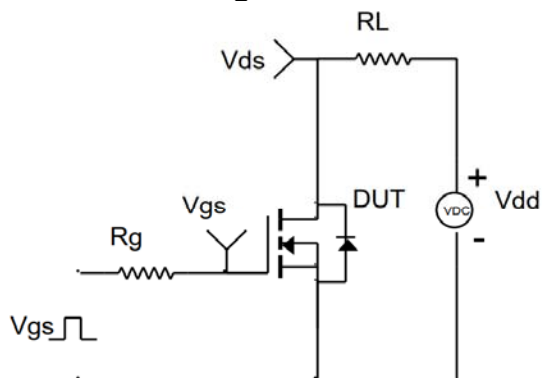




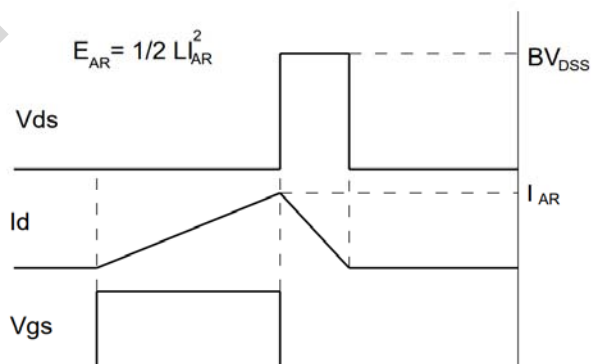
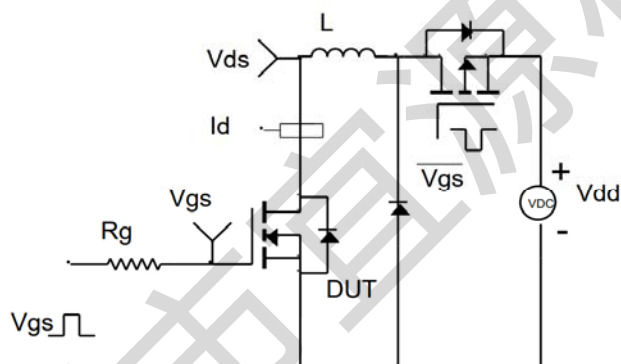
Gate Charge Test Circuit & Waveforms



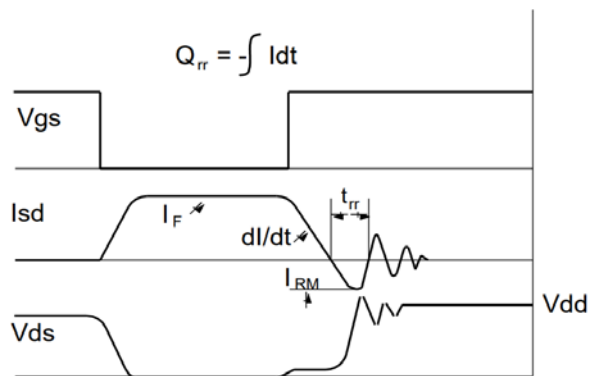
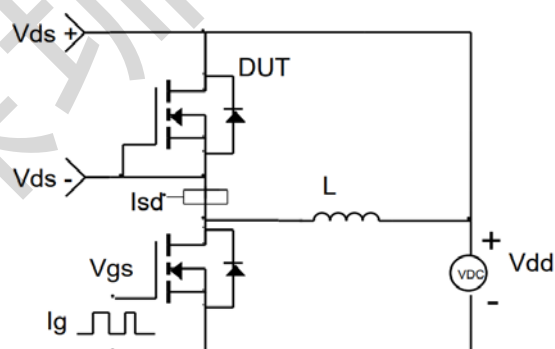
Resistive Switching Test Circuit & Waveforms

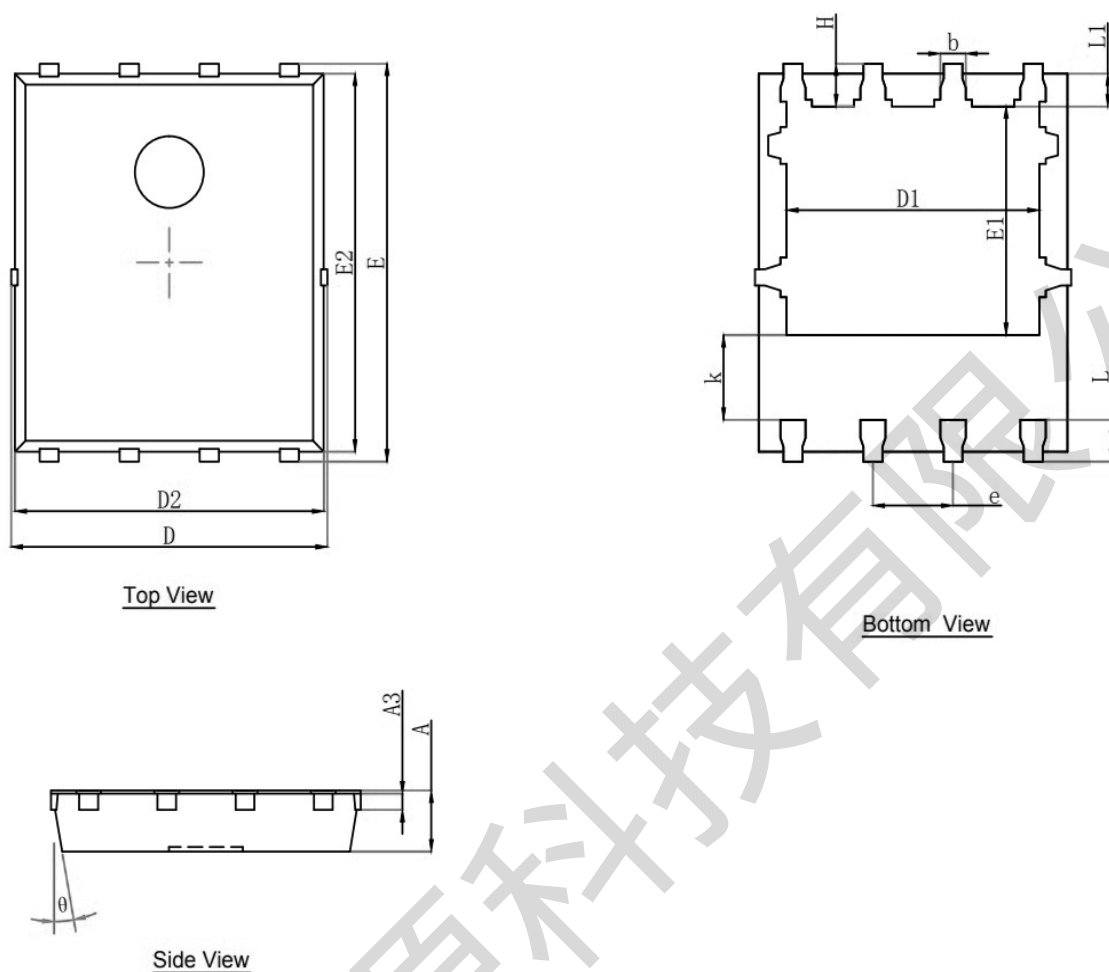


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms





Symbol	Dimensions (unit : mm)		
	Min	TYP	Max
A	0.90		1.0
A3	0.254REF		
D	4.94	5.00	5.1
E	5.97	6.00	6.1
D1	3.91	4.00	4.1
E1	3.37	3.50	3.6
D2	4.82	4.90	5
E2	5.67	5.70	5.8
k	1.19	1.30	1.4
b	0.35	0.35	0.45
e	1.27TYP		
L	0.56	0.65	0.71
L1	0.52	0.55	0.58
H	0.57	0.60	0.73
θ	10°	11°	12°