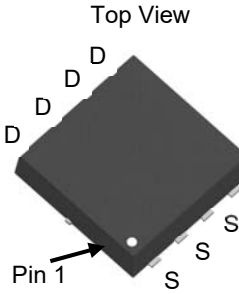
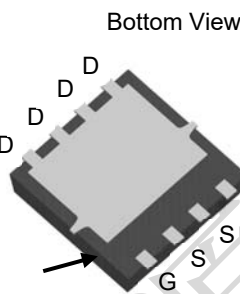
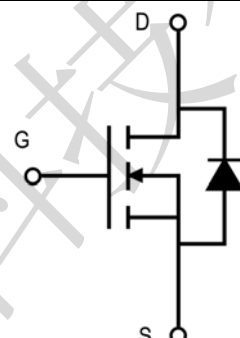


SGT N-Channel Enhancement-Mode MOSFET (40V,40A)

PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Typ.
40V	40A	5.7@ $V_{GS} = 10V$, $I_D=15A$
		8.3@ $V_{GS} = 4.5V$, $I_D=10A$

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

PDFN3333-8L Top View  Bottom View  Pin 1		TOP Marking  ET6440T XXXXXX XXXXXX:D/C
		

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)@ $T_A=25^\circ C$	40	A
	Drain Current (Continuous)@ $T_A=75^\circ C$	27	A
I_{DM}	Drain Current (Pulsed) ^a	160	A
P_D	Total Power Dissipation @ $T_c=25^\circ C$	30	W
	Total Power Dissipation @ $T_c=75^\circ C$	15	W
EAS	Avalanche energy, single pulsed	60	mJ
I_S	Maximum Diode Forward Current	45	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	35	$^\circ C/W$

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

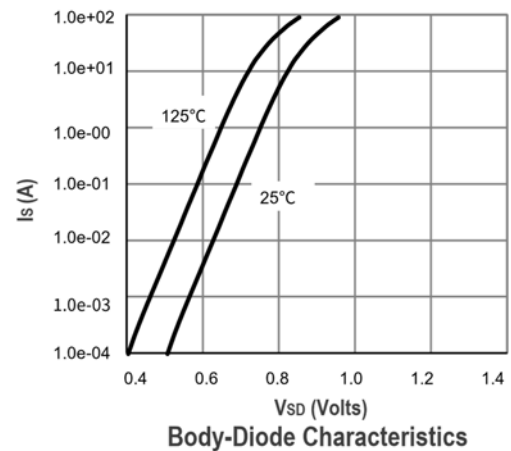
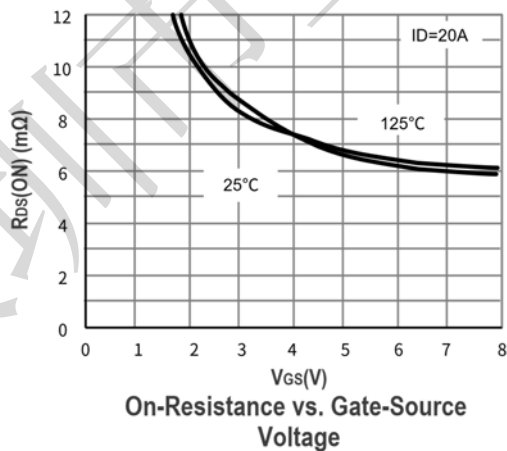
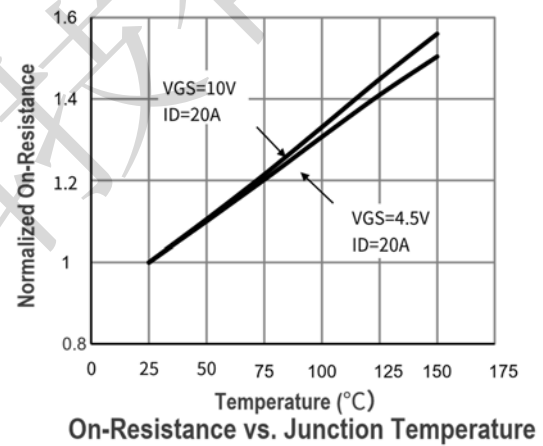
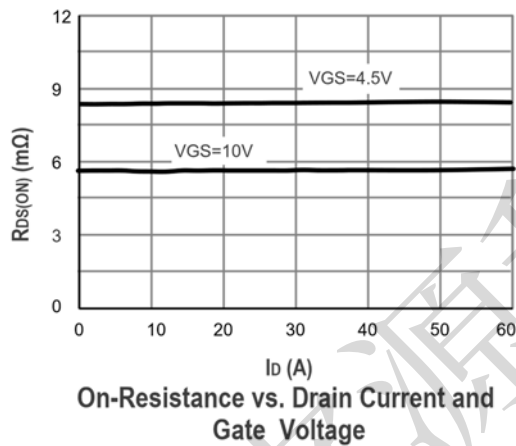
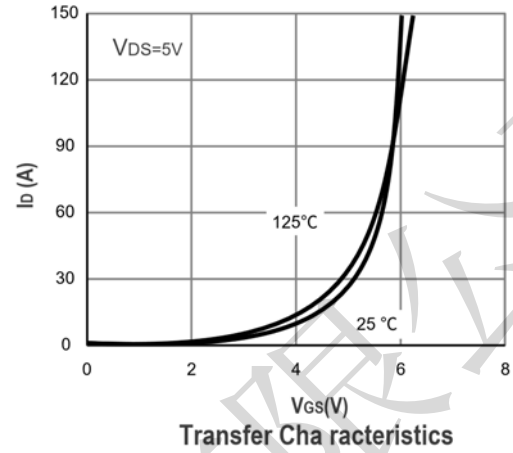
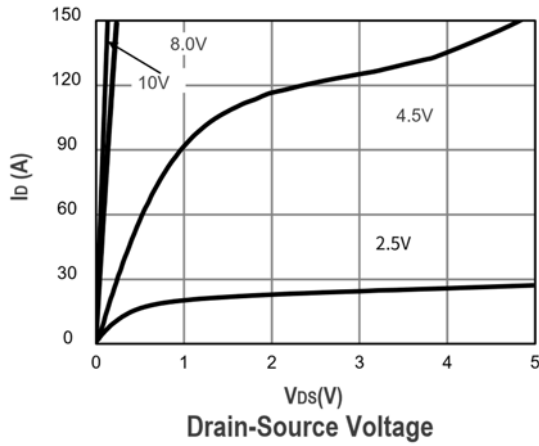
b: 1-in² 2oz Cu PCB board

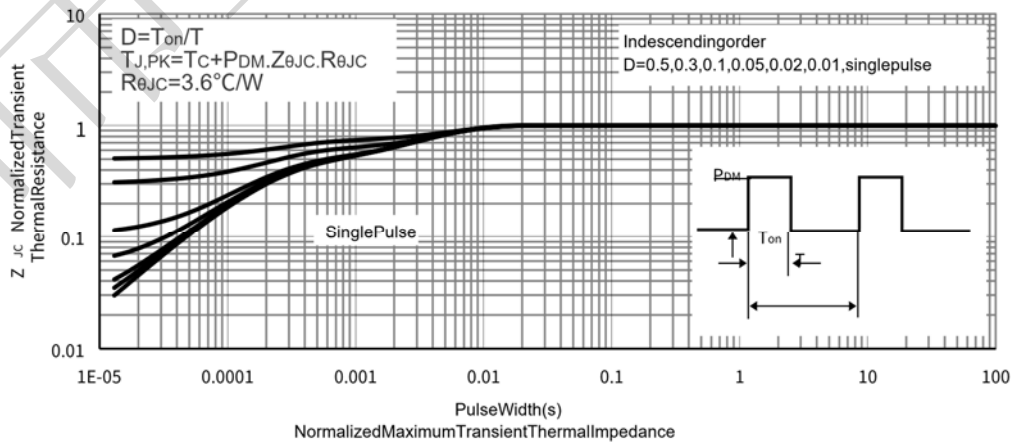
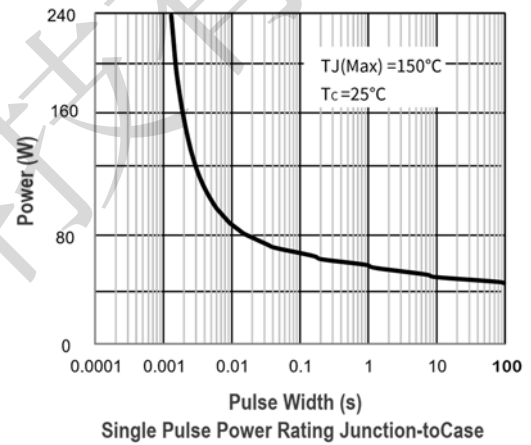
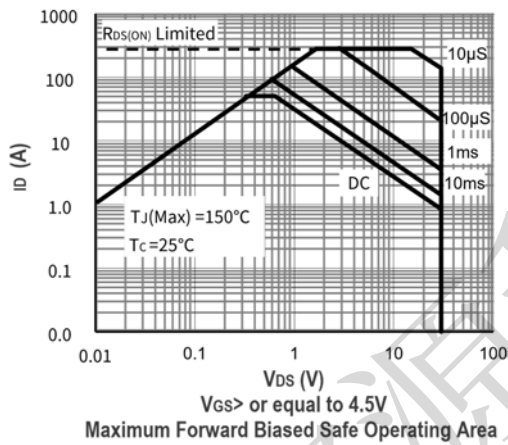
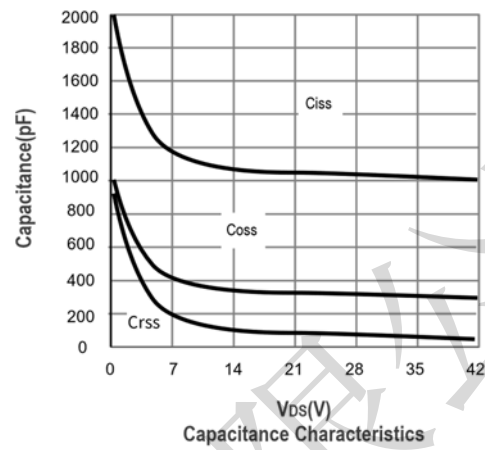
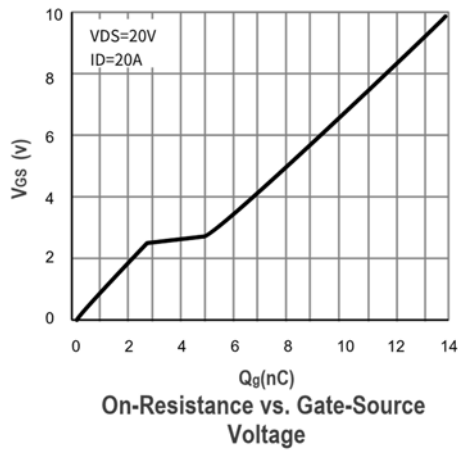
Electrical Characteristics (TA=25°C, unless otherwise noted)

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	-	5.7	7.0	mΩ
		V _{GS} =4.5V, I _D =10A	-	8.3	12.0	
g _{fs}	Forward Transconductance	V _{DS} =5V,I _D =20A		6		S
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	-	1010	-	PF
C _{oss}	Output Capacitance		-	350	-	
C _{rss}	Reverse Transfer Capacitance		-	25	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =20V, I _D =20A, V _{GS} =10V	-	14	-	nC
Q _{gs}	Gate-Source Charge		-	2.6	-	
Q _{gd}	Gate-Drain Charge		-	2.1	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =20V, R _L =15Ω, I _D =20A, V _{GEN} =10V, R _G =3Ω	-	5	-	nS
t _r	Turn-on Rise Time		-	25	-	
t _{d(off)}	Turn-off Delay Time		-	32	-	
t _f	Turn-off Fall Time		-	10	-	
• 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	-	2	-	Ω

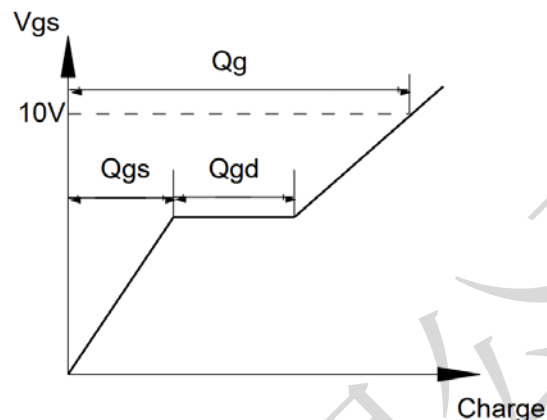
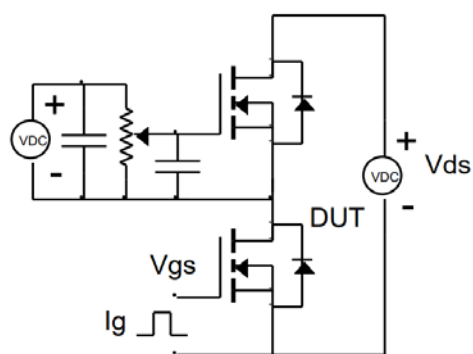
Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

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

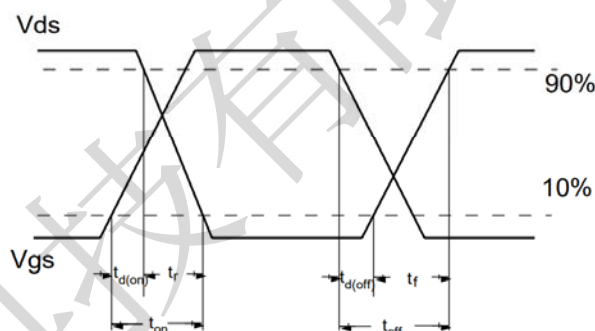
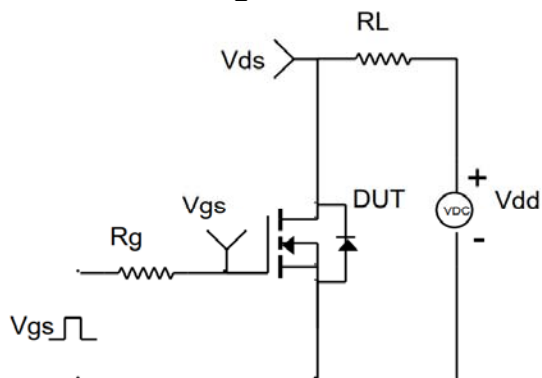




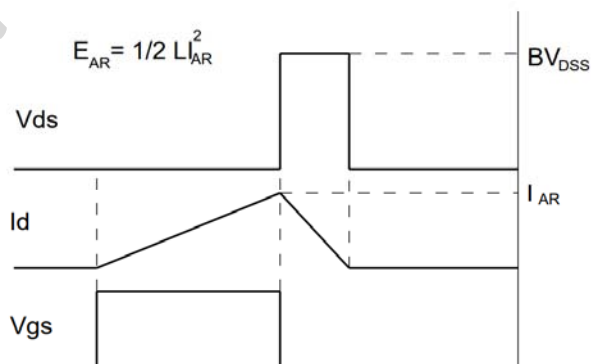
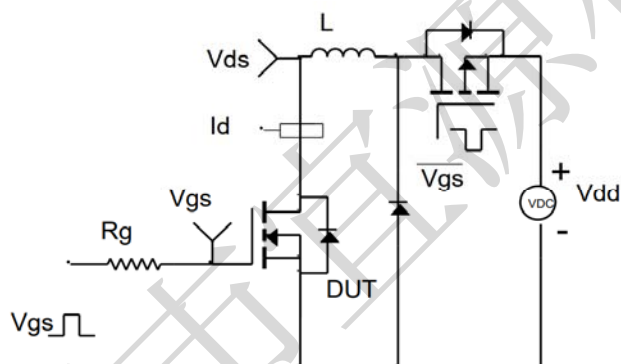
Gate Charge Test Circuit & Waveforms



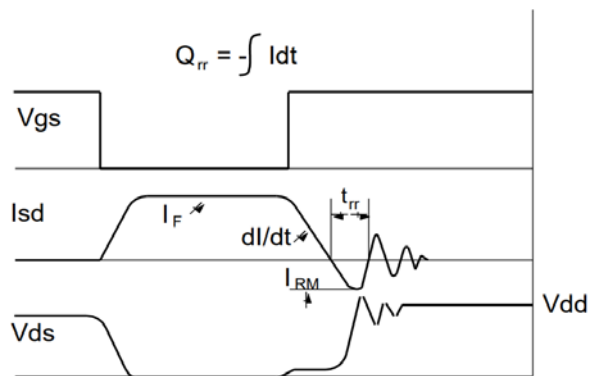
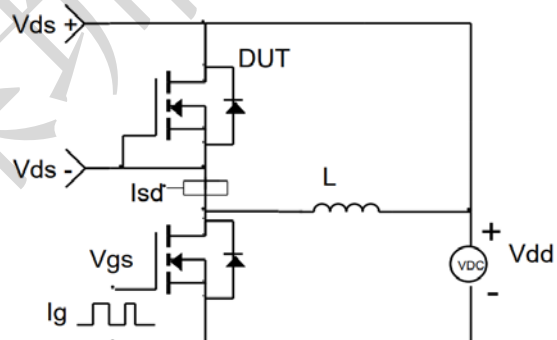
Resistive Switching Test Circuit & Waveforms



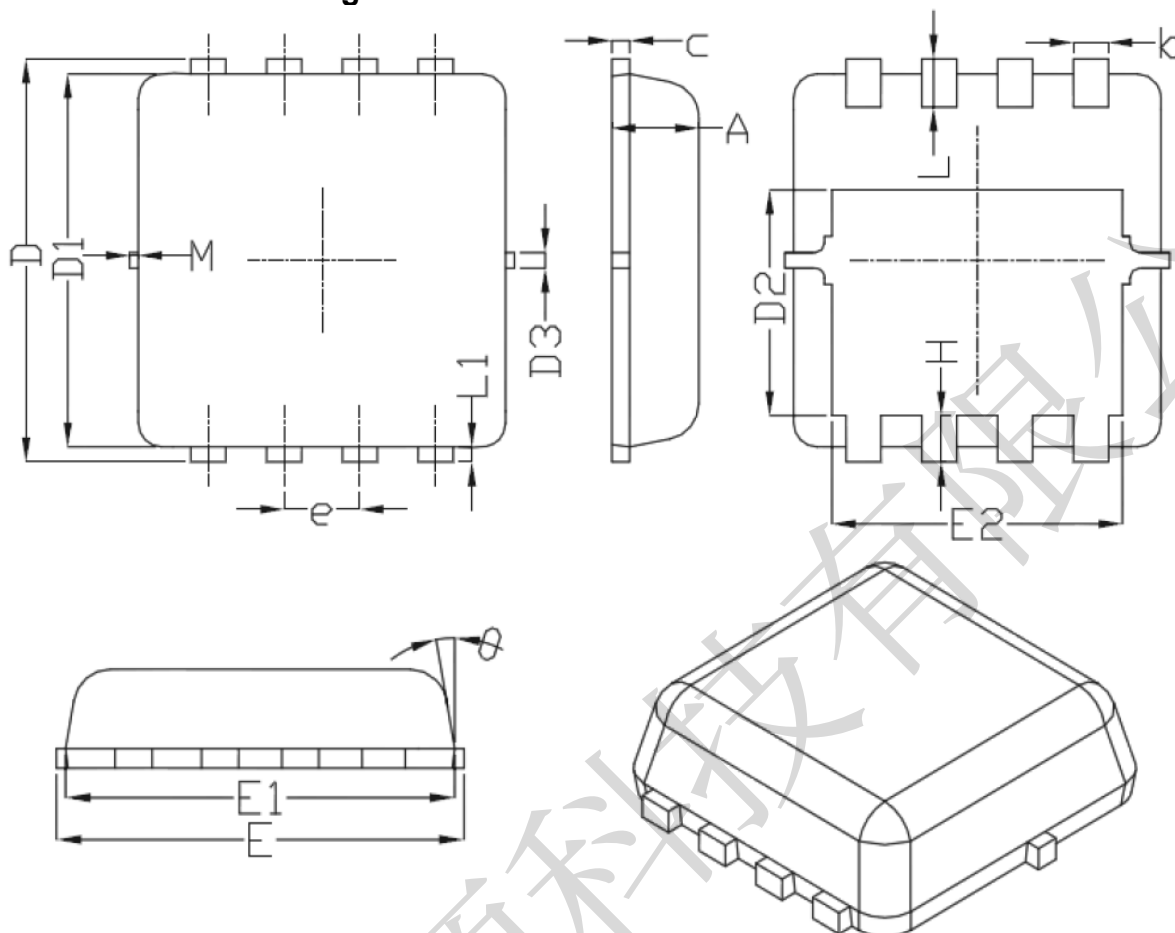
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



PDFN3333-8L EP1 Package Outline Data



Symbol	Dimensions (unit : mm)		
	Min	TYP	Max
A	0.700	0.750	0.800
b	0.250	0.300	0.350
c	0.100	0.150	0.250
D	3.250	3.350	3.450
D1	3.000	3.100	3.200
D2	1.780	1.880	1.980
D3	-	0.130	-
E	3.200	3.300	3.400
E1	3.000	3.150	3.200
E2	2.390	2.490	2.590
e	0.65BSC		
H	0.300	0.390	0.500
L	0.300	0.400	0.500
L1	-	0.130	-
θ	-	10°	12°
M	-	-	0.150