

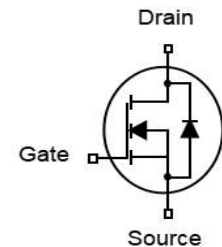
Features

- N-Channel
- Excellent gate charge x $R_{DS(on)}$ product(FOM)
- Very low on-resistance $R_{DS(on)}$
- 150 °C operating temperature
- Pb-free lead plating
- 100% EAS Tested

V_{DS}	40	V
$R_{DS(on),TYP@ V_{GS}=10V}$	0.7	mΩ
$R_{DS(on),TYP@ V_{GS}=4.5V}$	1.0	mΩ
I_D	255	A

DFN5x6


Part ID	Package Type	Marking	Packing
ZTG008N04GC	DFN5x6	ZTG008N04GC	5000pcs/Reel



Absolute Maximum Ratings $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter	Rating	Unit	
Common Ratings ($T_c=25^\circ\text{C}$ Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage	±20	V	
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	40	V	
T_J	Maximum Junction Temperature	150	°C	
T_{STG}	Storage Temperature Range	-55 to 150	°C	
I_{DM}	Drain Current-Continuous@ Current-Pulsed	$T_c = 25^\circ\text{C}$ 1066	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	$T_c = 25^\circ\text{C}$	255	A
		$T_c = 100^\circ\text{C}$	160	A
I_{AS}	Single pulse avalanche Current	50	A	
P_D	Maximum Power Dissipation	142	W	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.88	°C/W	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient (Note 3)	50	°C/W	
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed (Note 5)	625	mJ	

Electrical Characteristics (T_J=25°C unless otherwise noted)

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	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
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.4	2.0	2.4	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =50A	--	0.7	0.85	mΩ
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =50A	--	1.0	1.4	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note 4)						
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	--	7871	--	pF
C _{oss}	Output Capacitance		--	2388	--	pF
C _{rss}	Reverse Transfer Capacitance		--	72	--	pF
R _g	Gate Resistance	f=1MHz	--	1.3	--	Ω
Q _g	Total Gate Charge	V _{DS} =20V, I _D =50A, V _{GS} =10V	--	114	--	nC
Q _{gs}	Gate-Source Charge		--	32	--	nC
Q _{gd}	Gate-Drain Charge		--	19	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =20V, I _D =50A, R _G =4.7Ω, V _{GS} =10V	--	27	--	ns
T _r	Turn-on Rise Time		--	36	--	ns
T _{d(off)}	Turn-Off Delay Time		--	93	--	ns
T _f	Turn-Off Fall Time		--	28	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _S	Diode Forward Current (Note 2)		--	--	255	A
V _{SD}	Forward on voltage (Note 3)	I _S =50A, V _{GS} =0V	--	--	1.4	V
T _{rr}	Reverse Recovery Time	T _J =25°C, I _S =37.5A, V _R =30V di/dt=100A/μs	--	72	--	ns
Q _{rr}	Reverse Recovery Charge		--	115	--	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.
5. EAS condition : T_J=25°C, V_{DD}=32V, V_G=10V, L=0.5mH, R_g=25Ω.

Typical Electrical and Thermal Characteristics

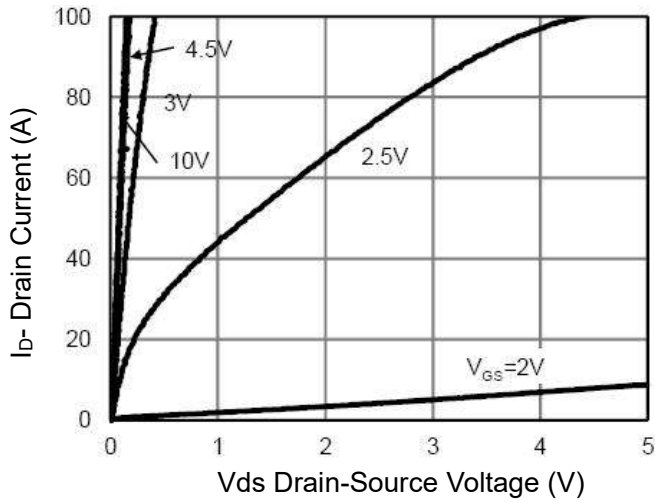


Figure 1 Output Characteristics

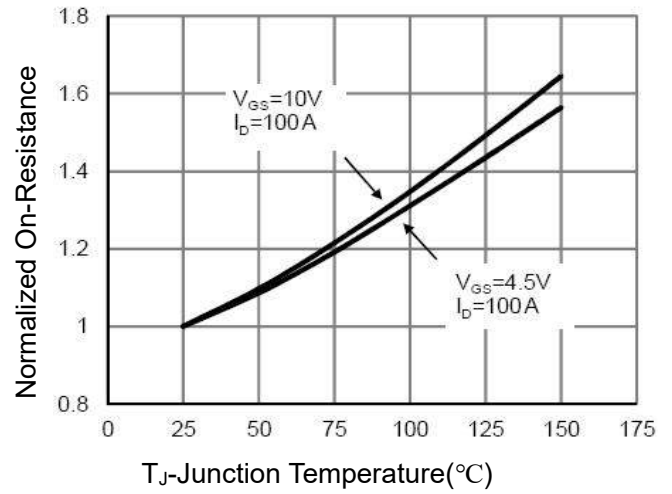


Figure 4 $R_{ds(on)}$ -Junction Temperature

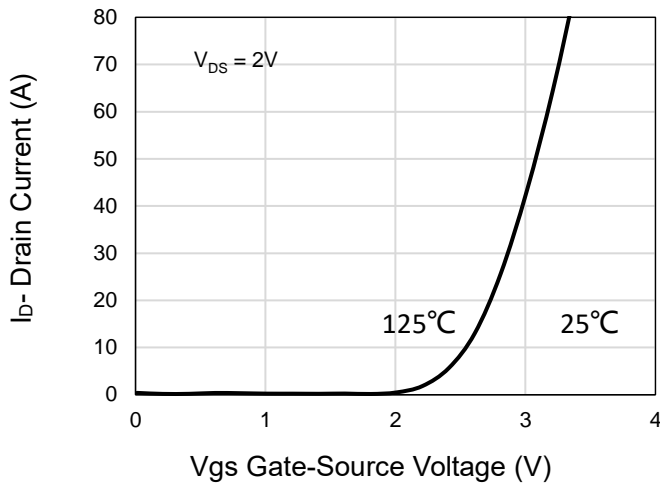


Figure 2 Transfer Characteristics

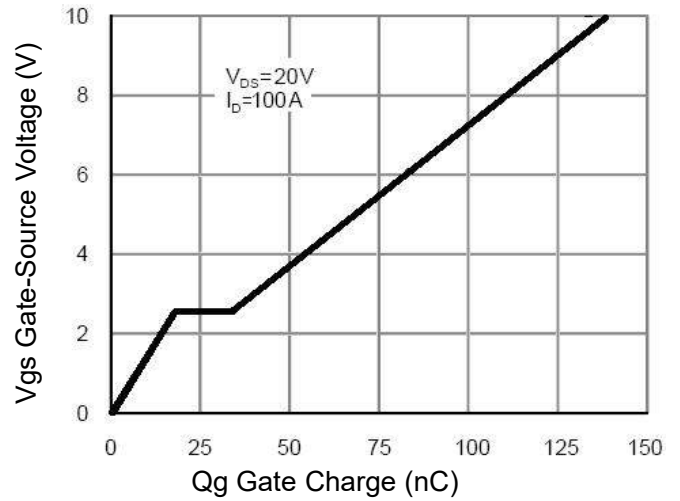


Figure 5 Gate Charge

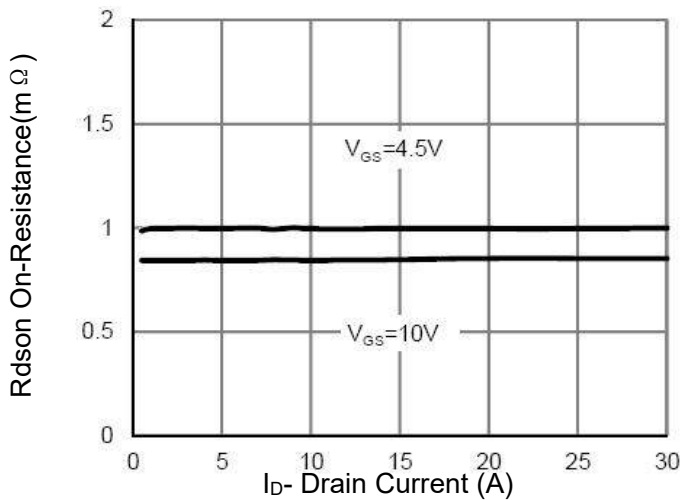


Figure 3 $R_{ds(on)}$ - Drain Current

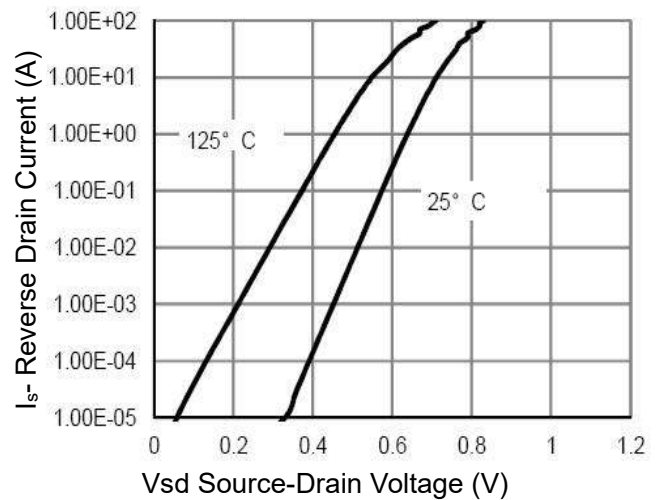


Figure 6 Source- Drain Diode Forward

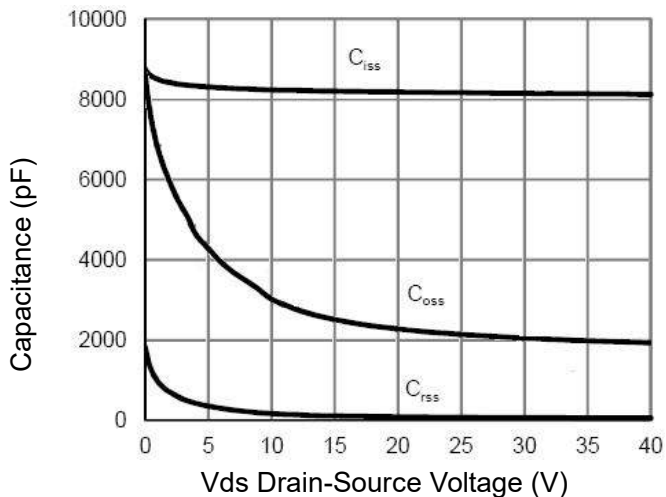


Figure 7 Capacitance vs Vds

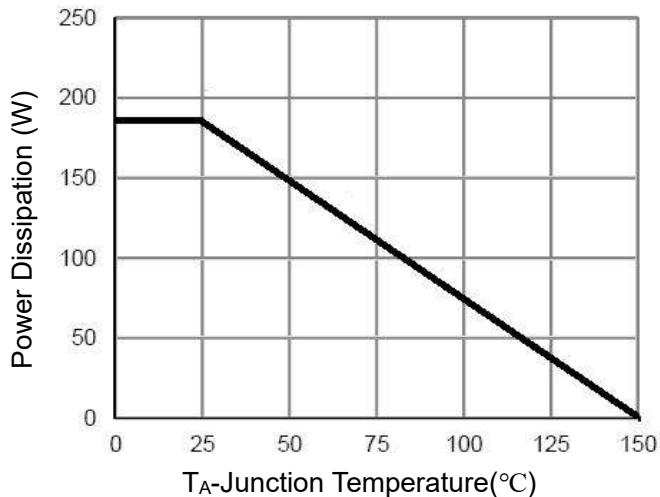


Figure 9 Power De-rating

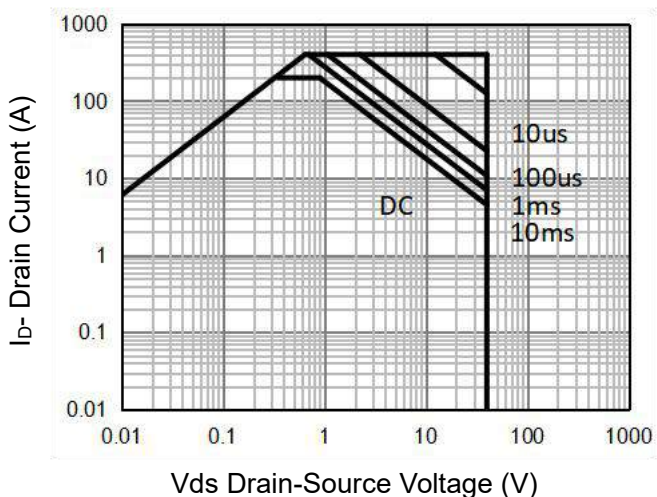


Figure 8 Safe Operation Area

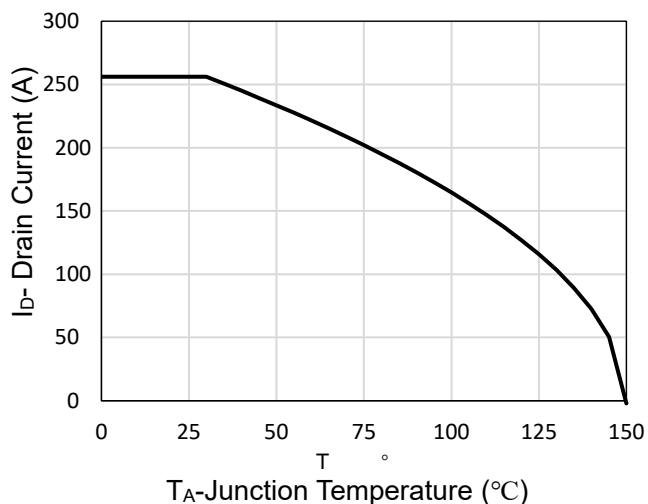


Figure 10 Current De-rating

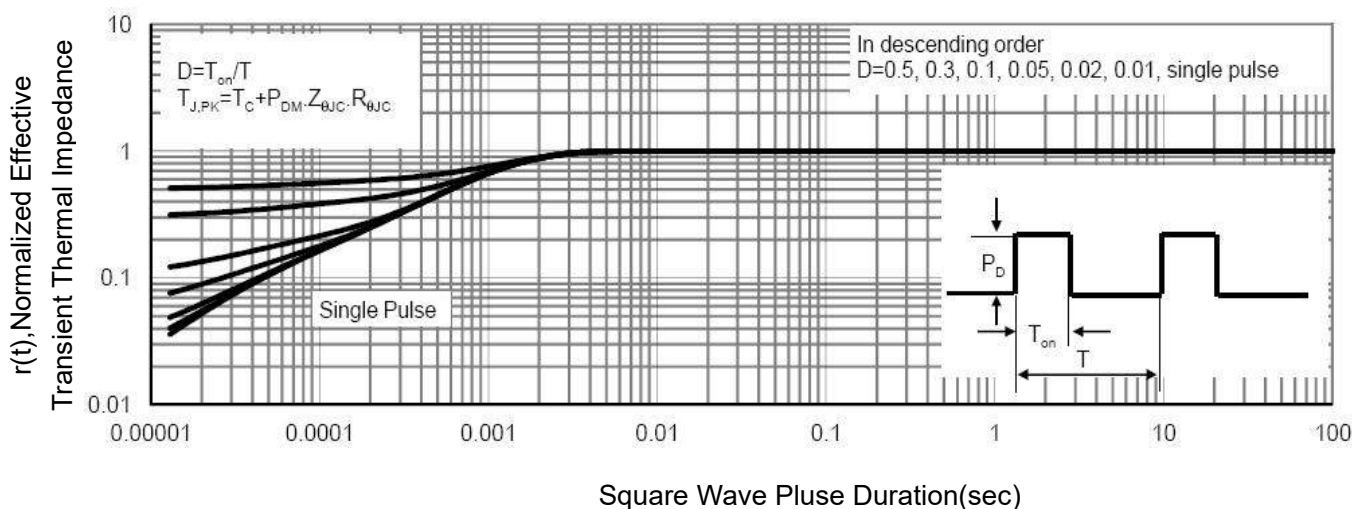
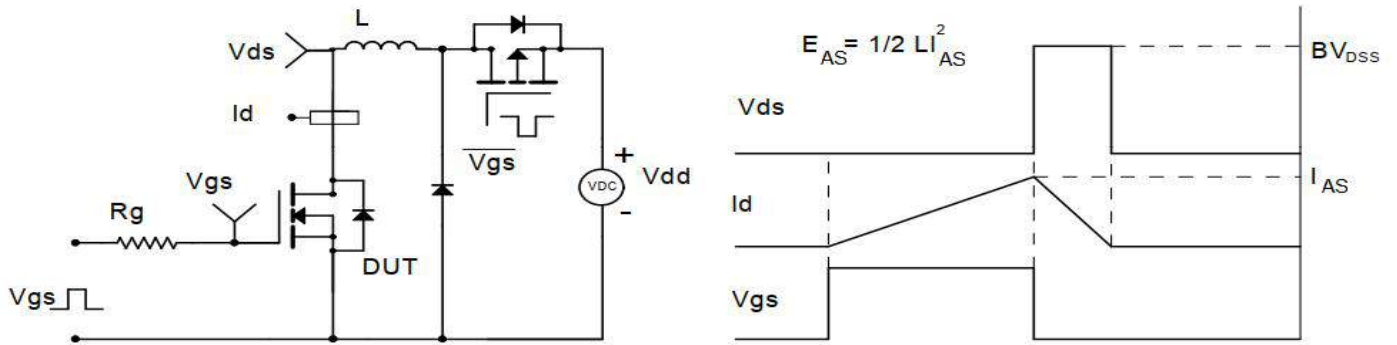


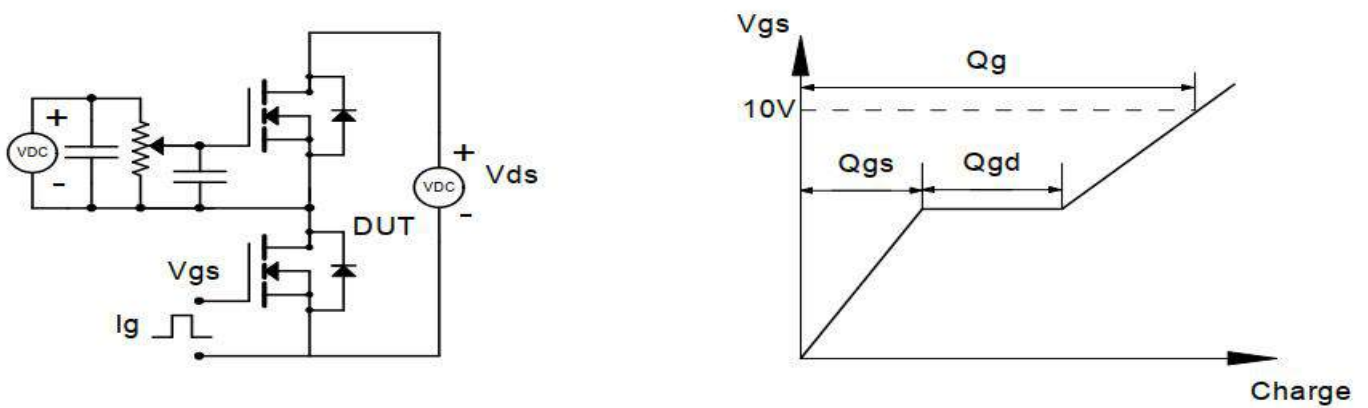
Figure 11 Normalized Maximum Transient Thermal Impedance

Test circuit&Waveform

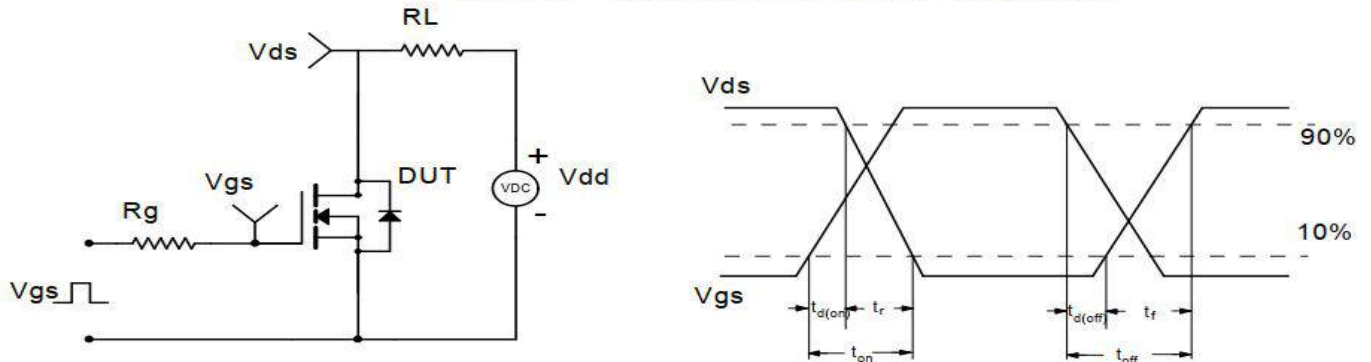
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



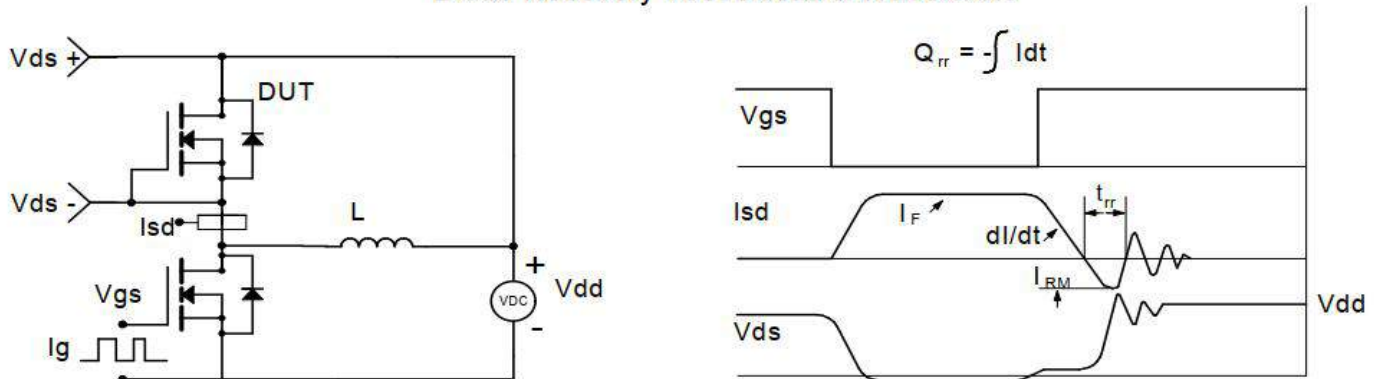
Gate Charge Test Circuit & Waveform



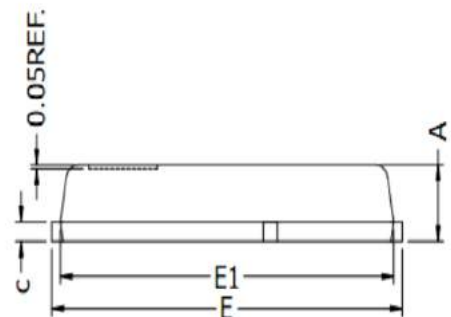
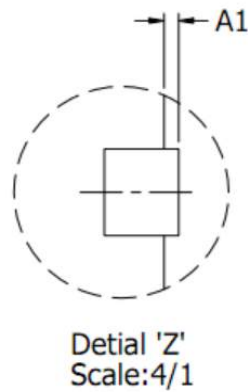
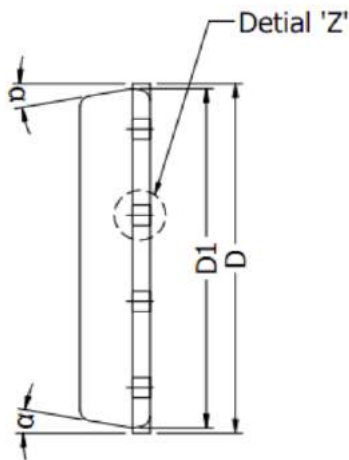
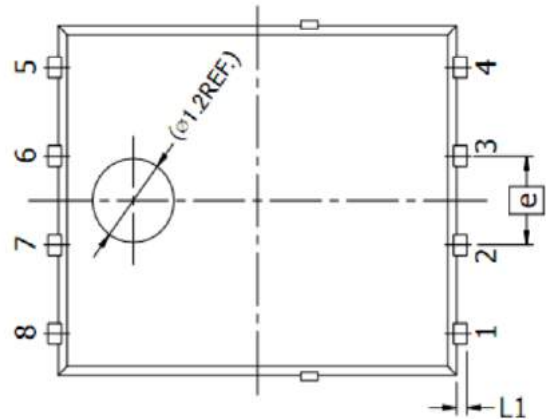
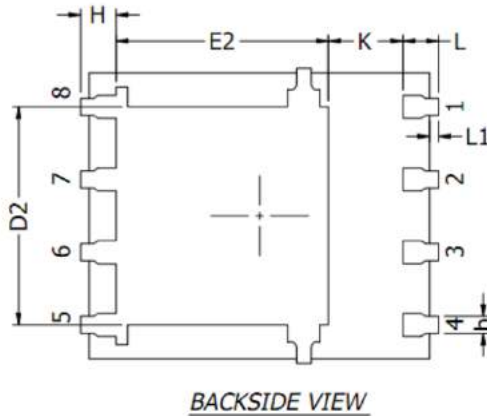
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



DFN5x6-8L Package Information



DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0	-	0.05
b	0.30	0.40	0.50
c	0.20	0.25	0.30
D	5.15 BSC		
D1	5.00 BSC		
D2	3.76	3.81	3.86
E	6.15 BSC		
E1	5.80	5.85	5.90
E2	3.45	3.65	3.85
e	1.27 BSC		
H	0.51	0.61	0.71
K	1.10	-	-
L	0.51	0.61	0.71
L1	0.08	0.15	0.23
α	10°	11°	12°

Customer Service

Sales and Service:

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