

Features

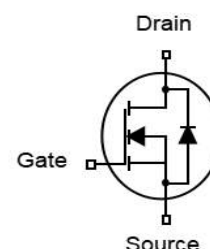
- N-Channel
- Excellent gate charge x $R_{DS(on)}$ product(FOM)
- Very low on-resistance $R_{DS(on)}$
- 100% EAS Tested

V_{DS}	150	V
$R_{DS(on),TYP}@ V_{GS}=10V$	7.4	m Ω
I_D	85	A

DFN5x6



Part ID	Package Type	Marking	Packing
ZTG088N15GC	DFN5x6	ZTG088N15GC	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	150	V	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
I_{DM}	Drain Current-Continuous@ Current-Pulsed	$T_c = 25^\circ\text{C}$ 340	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	$T_c = 25^\circ\text{C}$	85	A
		$T_c = 100^\circ\text{C}$	55	A
P_D	Maximum Power Dissipation	142	W	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.88	$^\circ\text{C}/\text{W}$	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient (Note 2)	50	$^\circ\text{C}/\text{W}$	
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed (Note 5)	200	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	150	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =150V, 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	3.0	--	4.6	V
R _{DS(on)}	Drain-Source On-State Resistance ^(Note 3)	V _{GS} =10V, I _D =44A	--	7.4	9.3	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) ^(Note 4)						
C _{iss}	Input Capacitance	V _{DS} =75V, V _{GS} =0V, f=1MHz	--	2800	--	pF
C _{oss}	Output Capacitance		--	710	--	pF
C _{rss}	Reverse Transfer Capacitance		--	17	--	pF
g _{FS}	Forward Transconductance	V _{DS} =2V, I _D =20A,	--	41	--	S
Q _g	Total Gate Charge	V _{DS} =75V, I _D =44A, V _{GS} =10V	--	40	--	nC
Q _{gs}	Gate-Source Charge		--	23	--	nC
Q _{gd}	Gate-Drain Charge		--	6.6	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =75V, I _D =44A, R _G =3.0Ω, V _{GS} =10V	--	24	--	ns
T _r	Turn-on Rise Time		--	91	--	ns
T _{d(off)}	Turn-Off Delay Time		--	27	--	ns
T _f	Turn-Off Fall Time		--	32	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode) ^(Note 2)		--	--	85	A
V _{SD}	Forward on voltage ^(Note 3)	I _S =44A, V _{GS} =0V	--	--	1.4	V
T _{rr}	Reverse Recovery Time	T _J =25°C, I _S =44A,	--	48	--	ns
Q _{rr}	Reverse Recovery Charge ^(Note 3)	di/dt=100A/μs	--	58	--	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}=50V, V_G=10V, L=0.5mH, R_G=25Ω

Typical Electrical and Thermal Characteristics

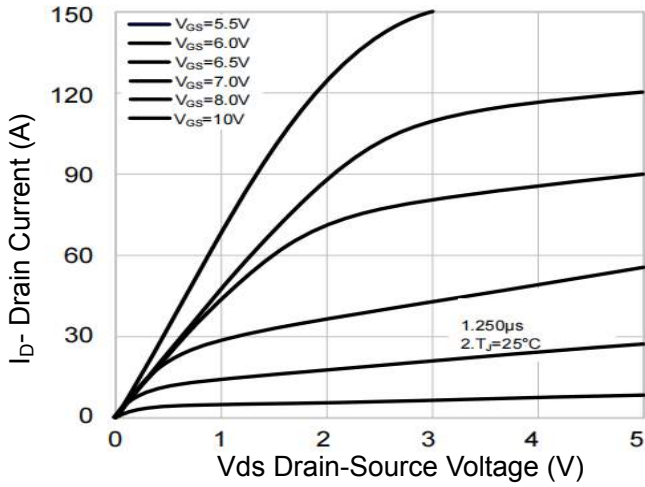


Figure 1 Output Characteristics

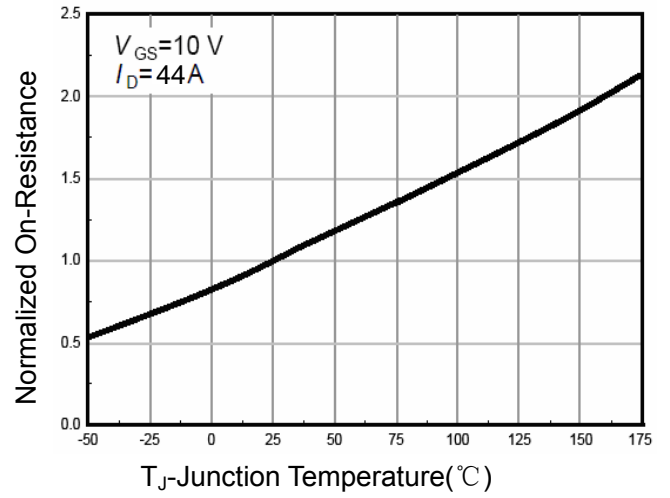


Figure 4 Rds(on)-Junction Temperature

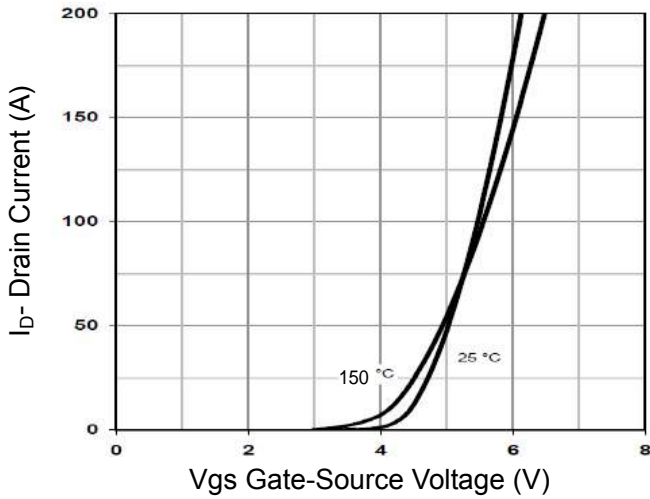


Figure 2 Transfer Characteristics

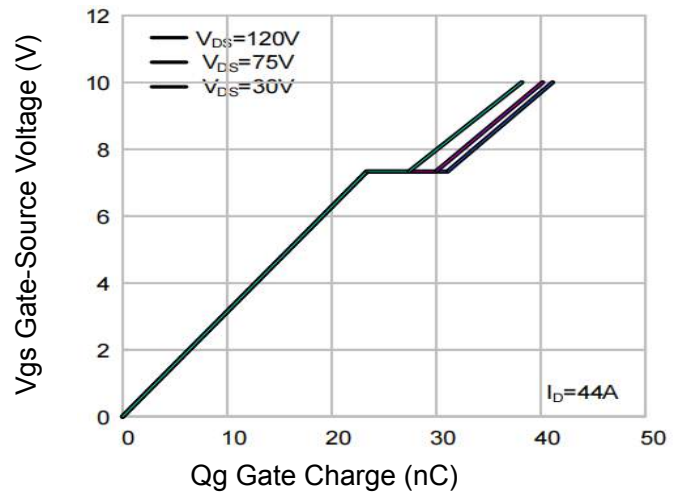


Figure 5 Gate Charge

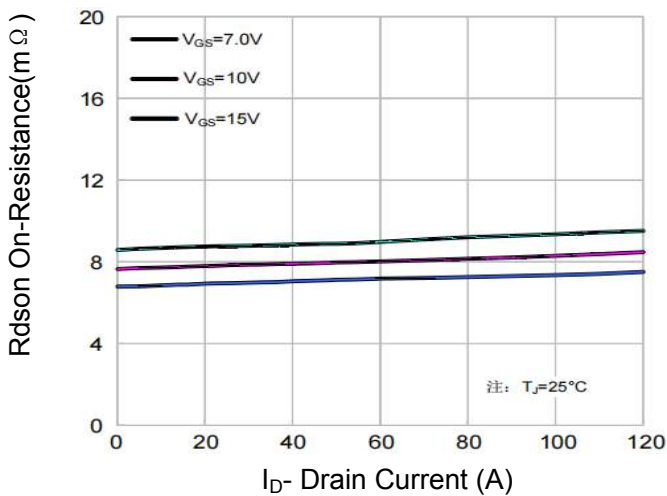


Figure 3 Rds(on)- Drain Current

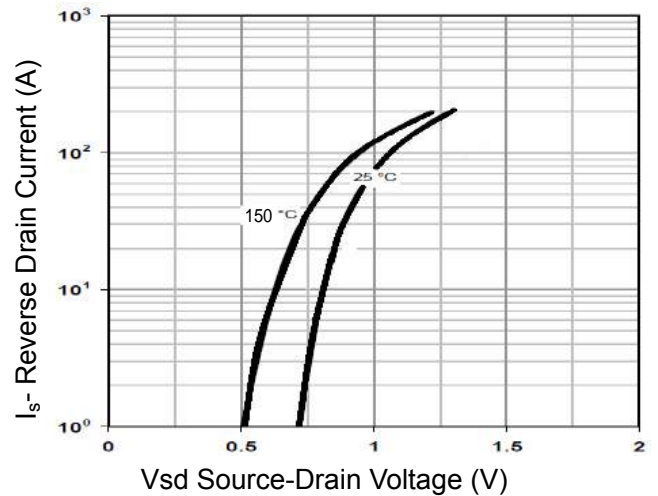


Figure 6 Source- Drain Diode Forward

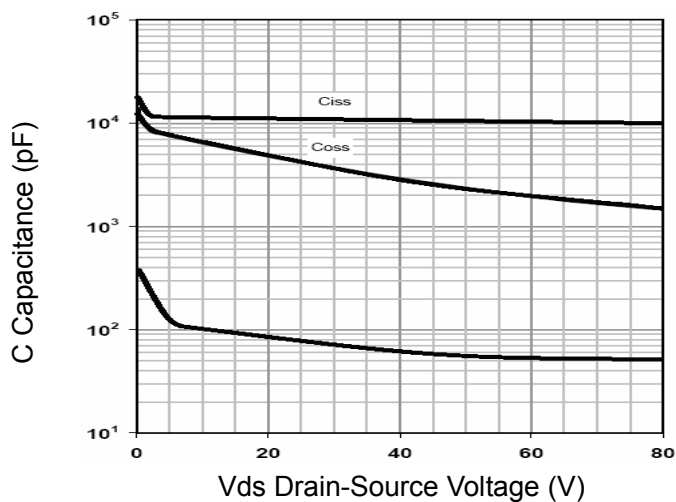


Figure 7 Capacitance vs Vds

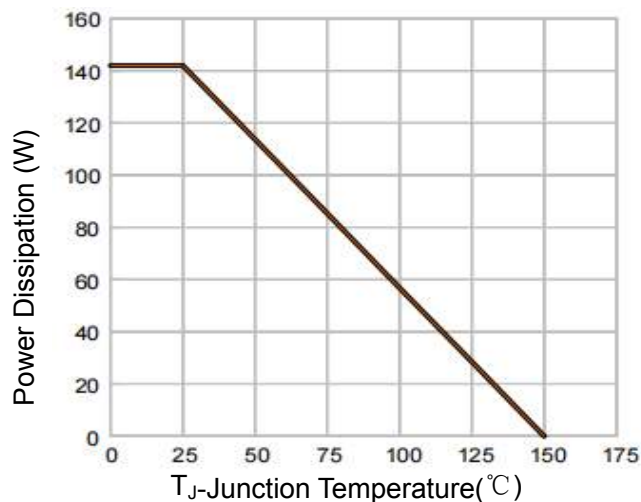


Figure 9 Power De-rating

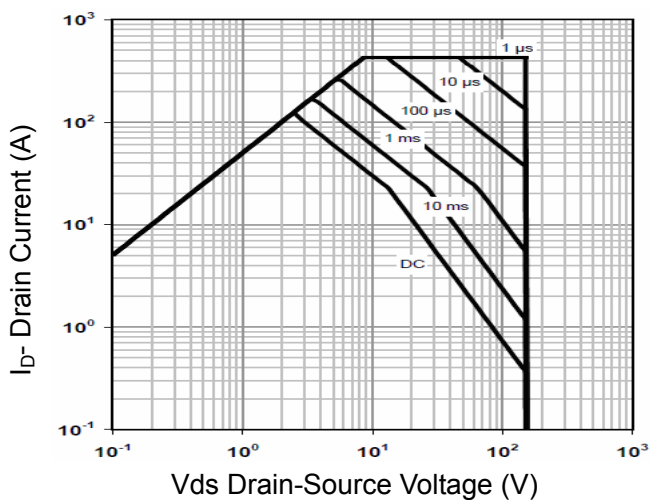


Figure 8 Safe Operation Area

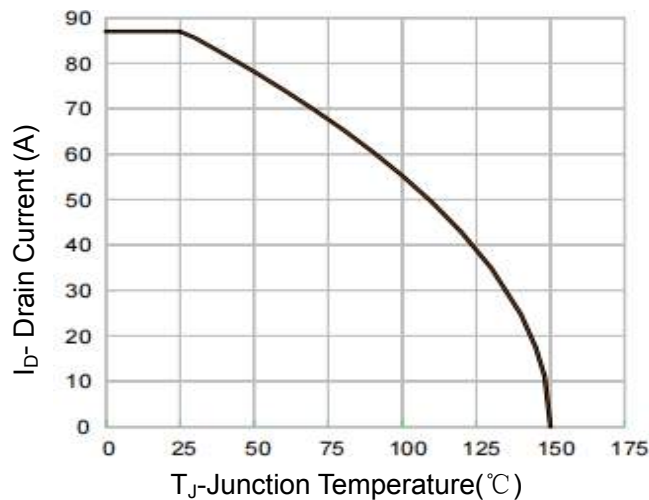


Figure 10 Current De-rating

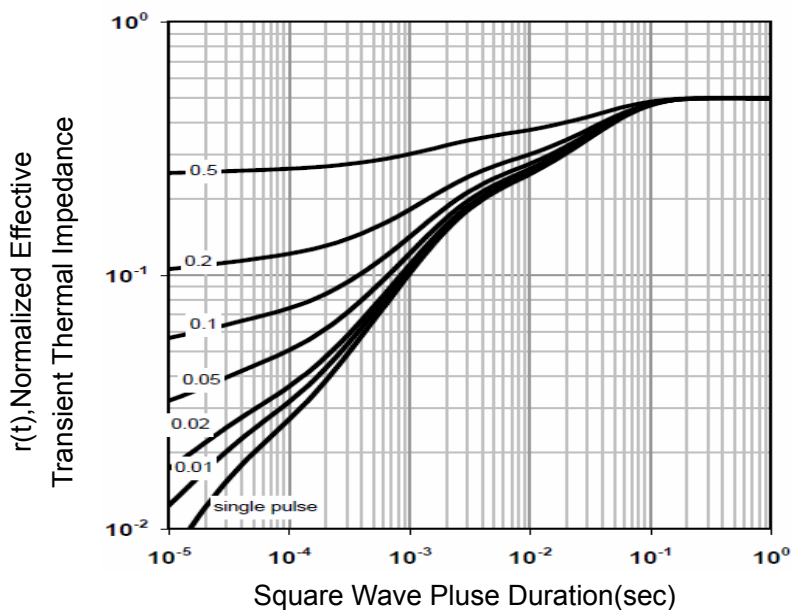
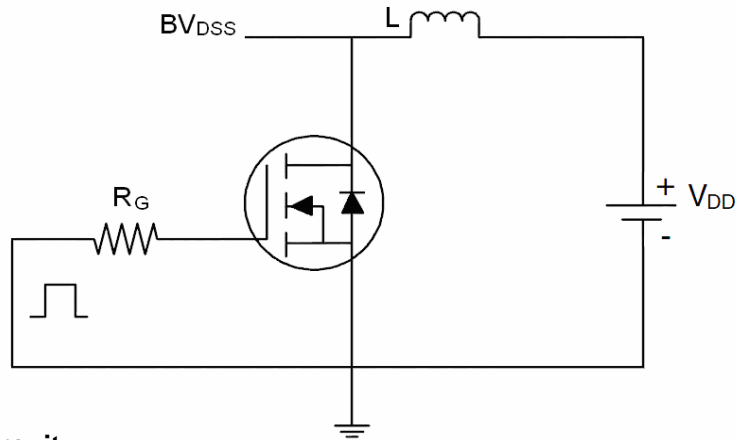


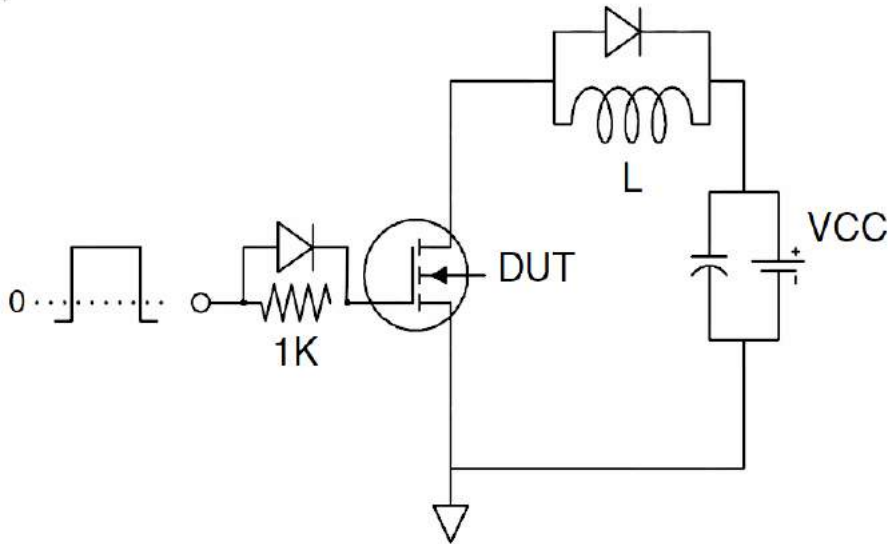
Figure 11 Normalized Maximum Transient Thermal Impedance

Test Circuit

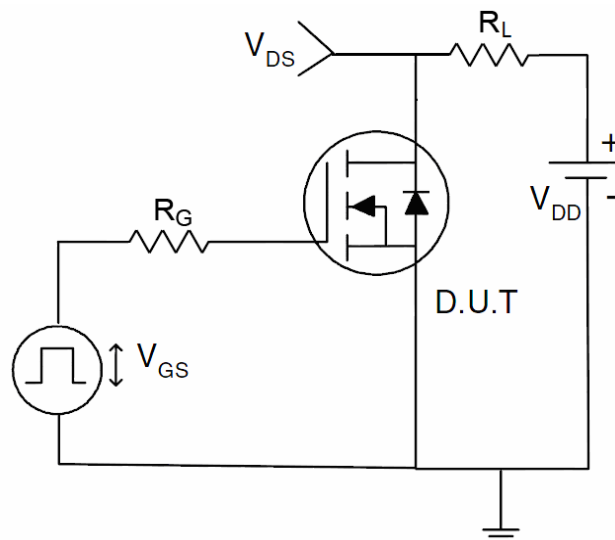
1) E_{AS} test Circuit



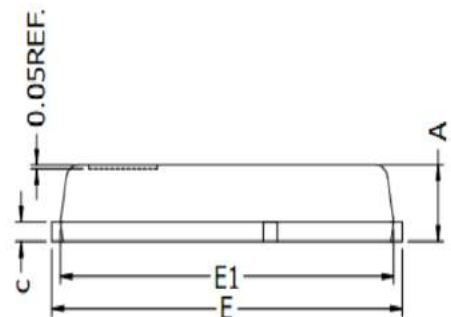
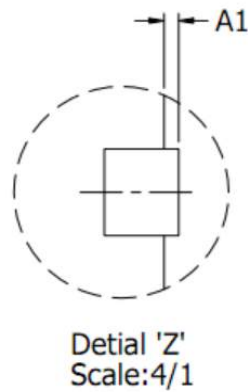
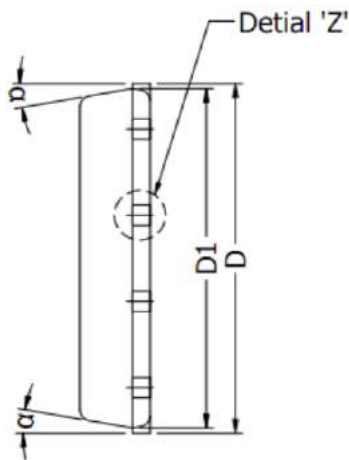
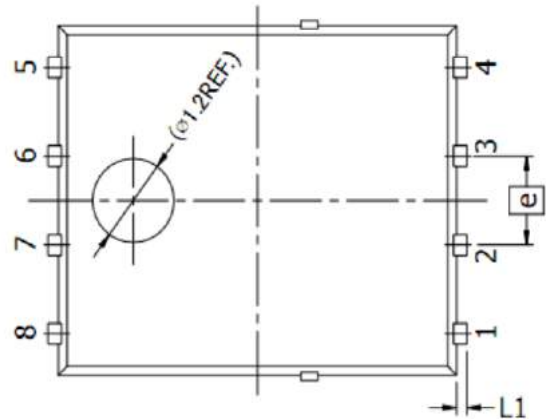
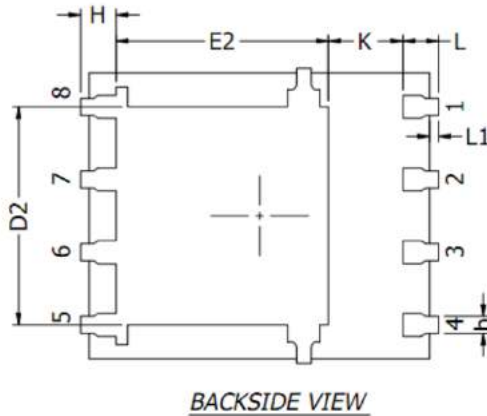
2) Gate charge test Circuit



3) Switch Time Test Circuit



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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