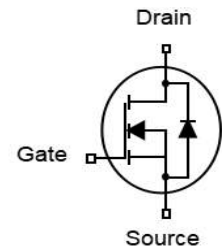


Features

- N-Channel
- 100% Avalanche Tested
- Reliable and Rugged
- Lead-Free and Green Devices Available
- RoHS Compliant
- 100% EAS Tested

V_{DS}	100	V
$R_{DS(on),TYP}@ V_{GS}=10V$	3.2	m Ω
I_D	180	A

TO-263


Part ID	Package Type	Marking	Packing
ZTG032N10B	TO-263	ZTG032N10B	1000pcs/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	100	V	
T_J	Maximum Junction Temperature	175	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$	
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 1)	$T_c = 25^\circ\text{C}$ 720	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	$T_c = 25^\circ\text{C}$	180	A
		$T_c = 100^\circ\text{C}$	127	A
P_D	Maximum Power Dissipation	$T_c = 25^\circ\text{C}$	220	W
		$T_c = 100^\circ\text{C}$	110	W
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.68	$^\circ\text{C/W}$	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient (Note 2)	62.5	$^\circ\text{C/W}$	
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed (Note 3)	720	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	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, 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 ^(Note 4)	V _{GS} =10V, I _D =50A	--	3.2	4.0	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=0.5MHz	--	7110	--	pF
C _{oss}	Output Capacitance		--	2411	--	pF
C _{rss}	Reverse Transfer Capacitance		--	182	--	pF
R _g	Gate Resistance f=1MHz	f=1MHz	--	2.1	--	Ω
Q _g	Total Gate Charge	V _{DS} =80V, I _D =50A, V _{GS} =10V	--	113	--	nC
Q _{gs}	Gate-Source Charge		--	40	--	nC
Q _{gd}	Gate-Drain Charge		--	29	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =50V, I _D =50A, R _G =4Ω, V _{GS} =10V	--	27	--	ns
T _r	Turn-on Rise Time		--	97	--	ns
T _{d(off)}	Turn-Off Delay Time		--	69	--	ns
T _f	Turn-Off Fall Time		--	84	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode)		--	--	180	A
V _{SD}	Forward on voltage ^(Note 4)	I _S =50A, V _{GS} =0V	--	--	1.3	V
T _{rr}	Reverse Recovery Time	T _J =25°C, I _F =50A,	--	79	--	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs	--	191	--	nC

Notes

1. Repetitive rating ; pulse width limited by max. junction temperature.
2. Surface mounted on FR -4 board.
3. Limited by T_{Jmax} , starting T_J=25°C, L = 0.3mH, V_{DS}=80V, V_{GS} =10V.
4. Pulse test , pulse width ≤ 300us, duty cycle ≤ 2%

Typical Electrical and Thermal Characteristics

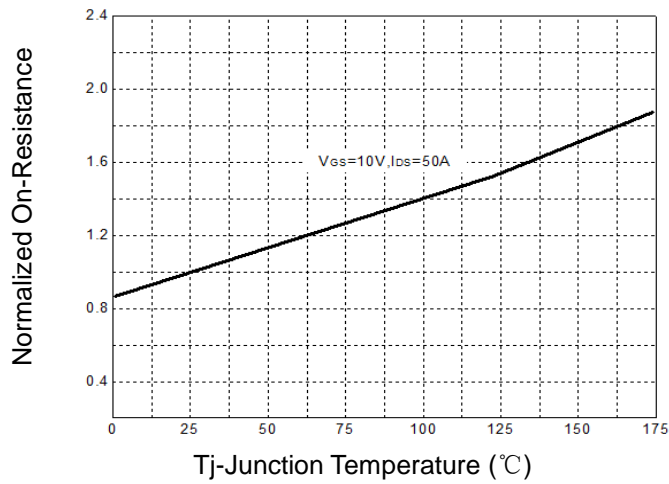


Figure 1: On-Resistance vs. Temperature

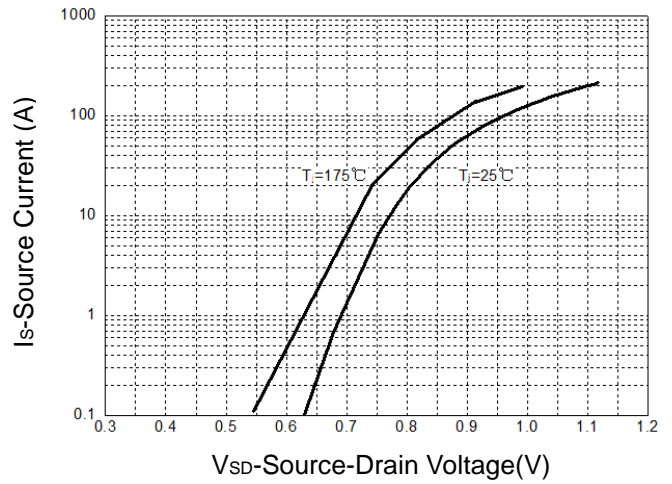


Figure 4: Source-Drain Diode Forward

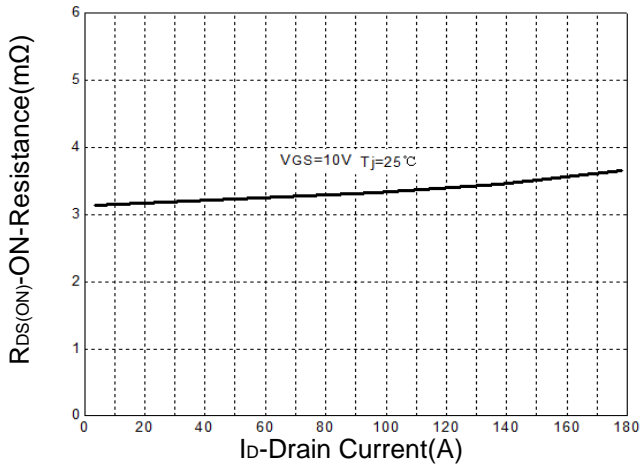


Figure 2: Drain-Source On Resistance

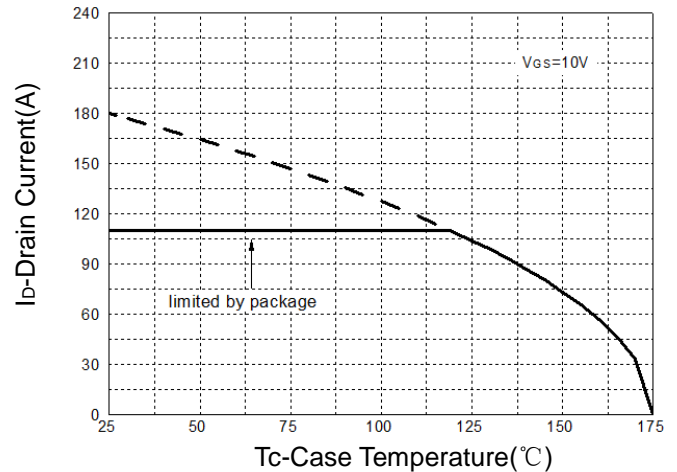


Figure 5: Drain Current

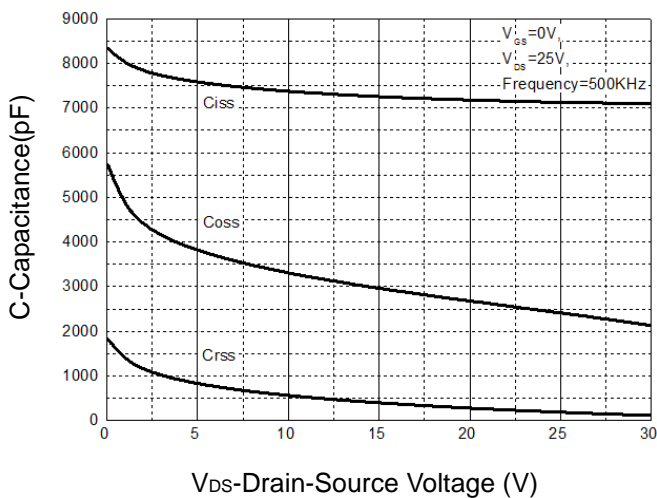


Figure 3: Capacitance Characteristics

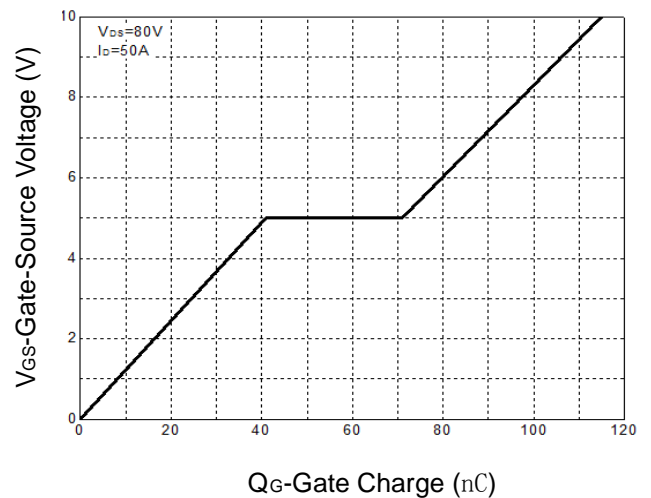


Figure 6: Gate Charge Characteristics

Typical Electrical and Thermal Characteristics

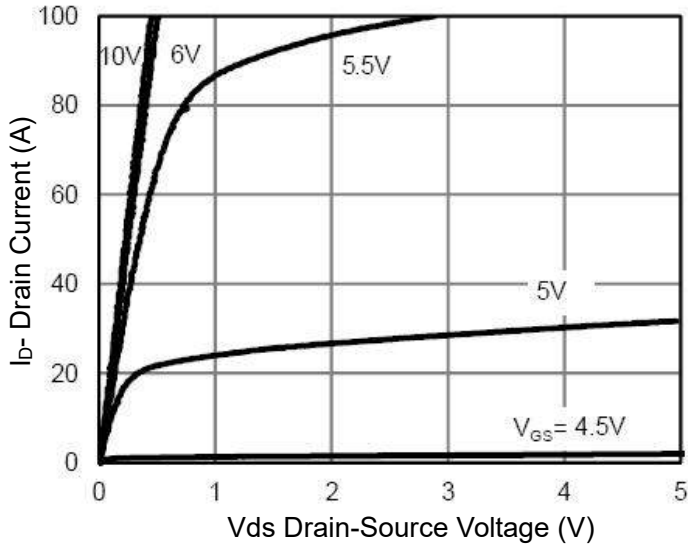


Figure 7: Output Characteristics

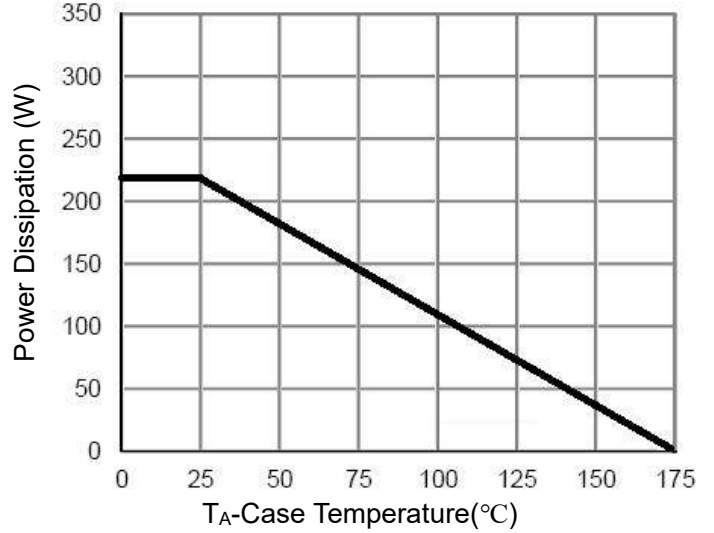


Figure 9: Power De-rating

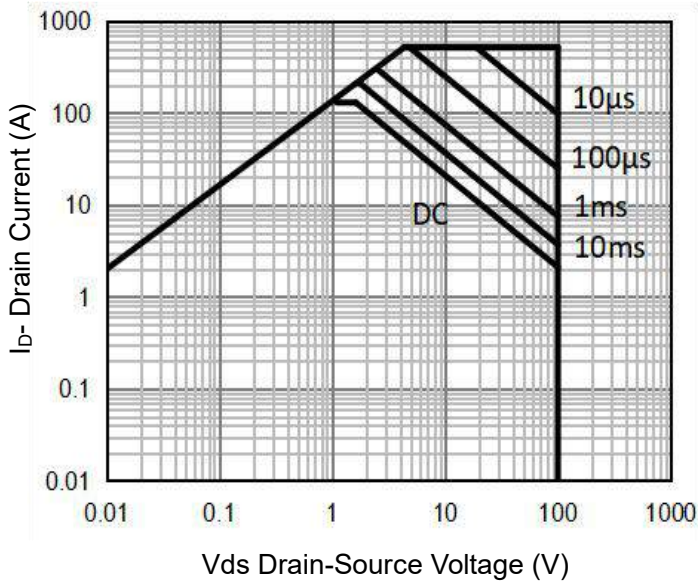


Figure 8: Safe Operation Area

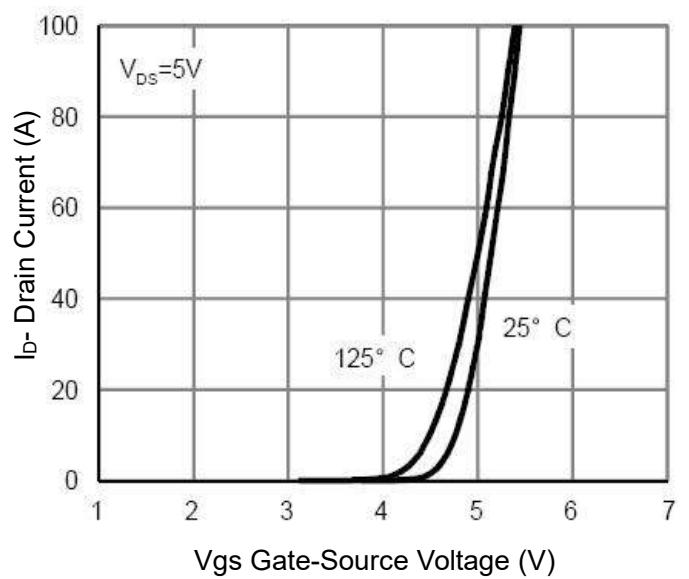


Figure 10: Transfer Characteristics

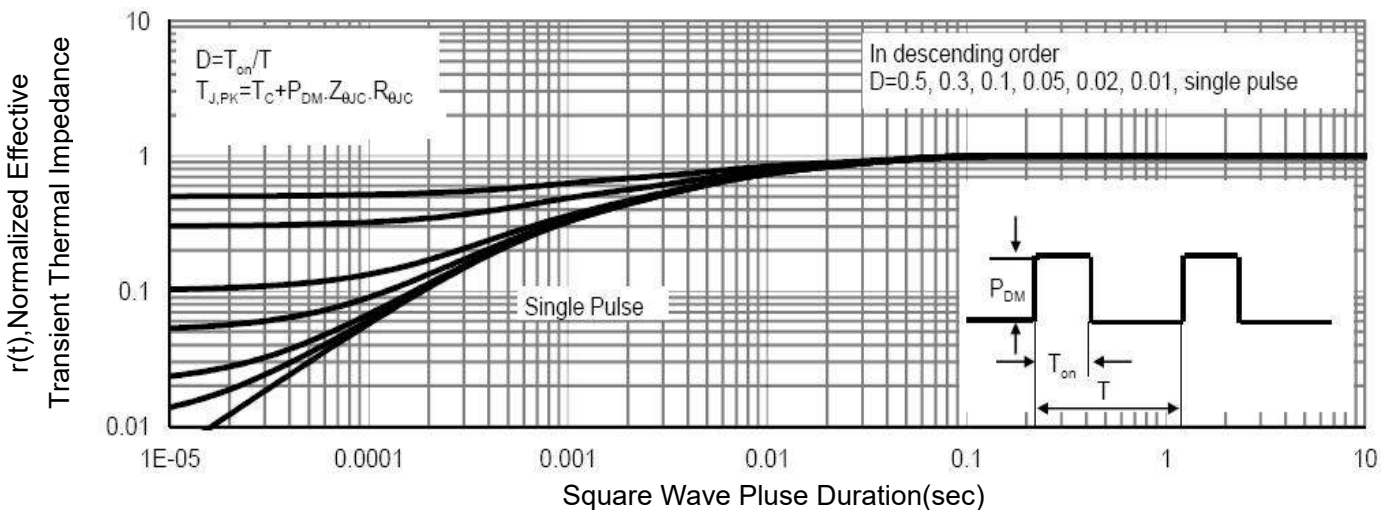


Figure 11: Normalized Maximum Transient Thermal Impedance

Figure A: Gate Charge Test Circuit and Waveform

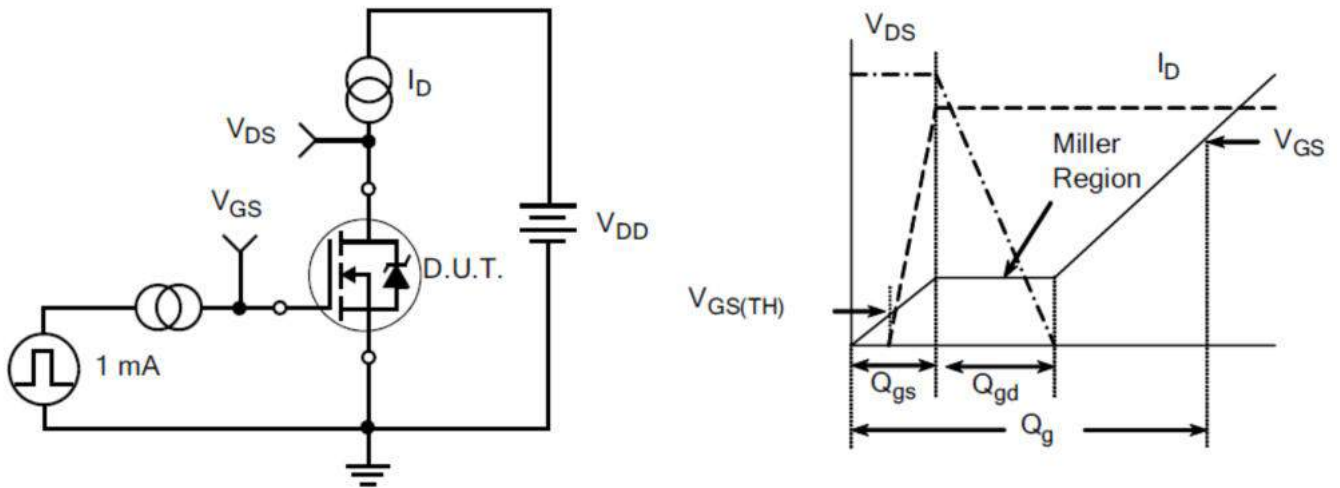


Figure B: Resistive Switching Test Circuit and Waveform

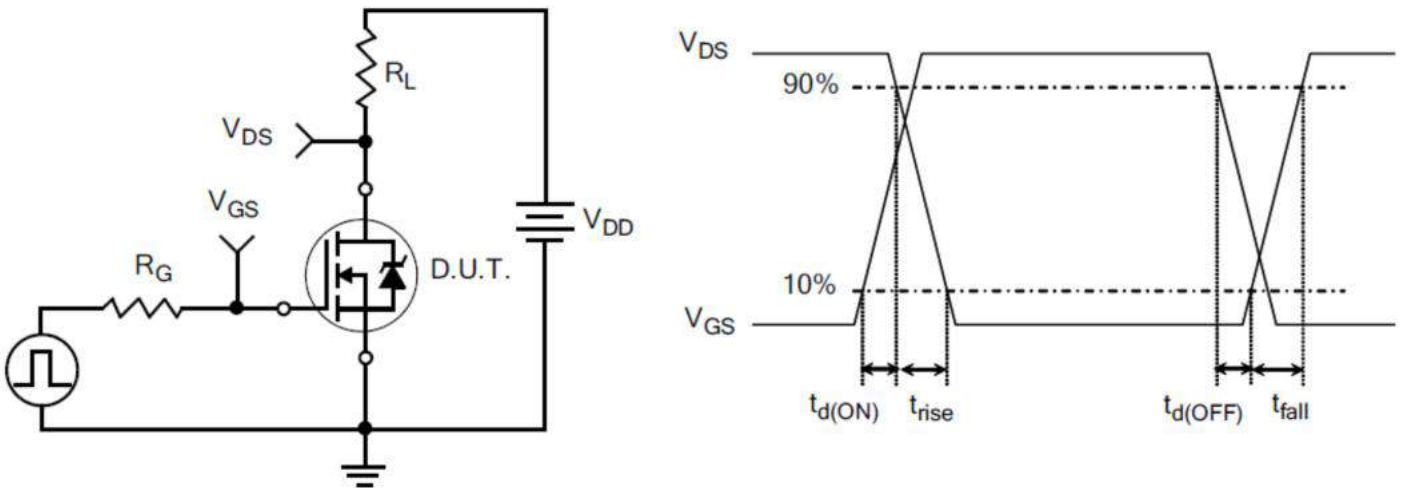
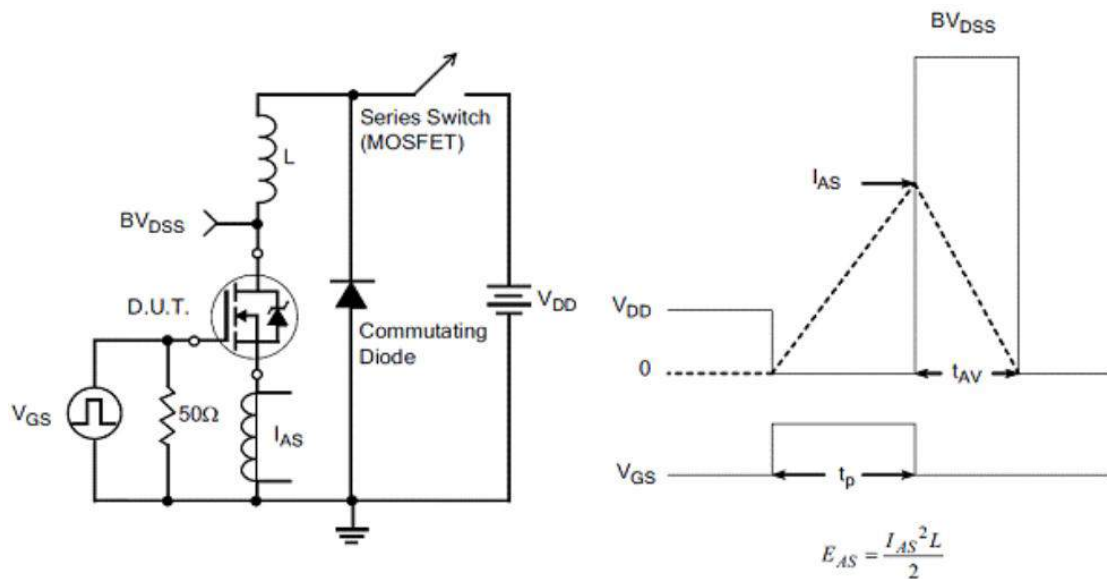
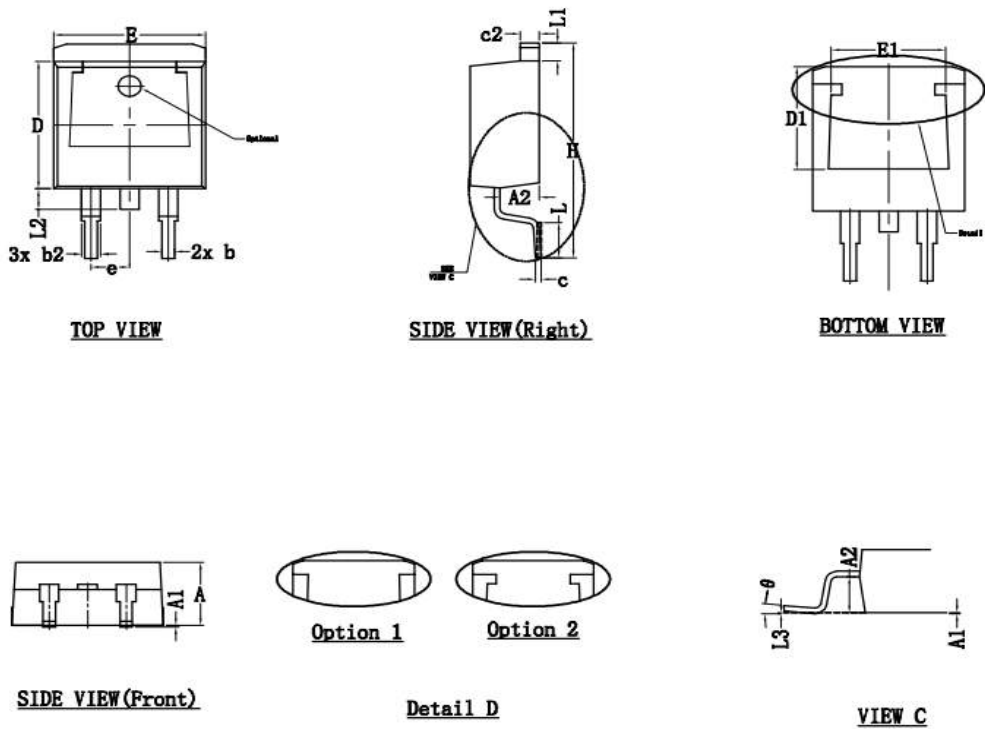


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



TO-263-2L Package Information



SYMBOL	DIMENSIONS			
	mm		inch	
	MIN.	MAX.	MIN.	MAX.
A	4.30	4.86	0.169	0.191
A1	0.00	0.25	0.00	0.010
A2	2.34	2.79	0.092	0.110
b	0.68	0.94	0.027	0.037
b2	1.15	1.35	0.045	0.053
c	0.33	0.65	0.013	0.026
c2	1.17	1.40	0.046	0.055
D	8.38	9.45	0.330	0.372
D1	6.90	8.17	0.272	0.322
E	9.78	10.50	0.385	0.413
E1	6.50	8.60	0.256	0.339
H	14.61	15.88	0.575	0.625
e	2.54 BSC.		0.100 BSC.	
L	1.78	2.79	0.070	0.110
L1	0.70	1.60	0.028	0.063
L2	1.00	1.78	0.039	0.070
L3	0.254 BSC.		0.010 BSC.	
θ	0°	8°	0.00	0.315

Customer Service

Sales and Service:

zj@ztasemi.com