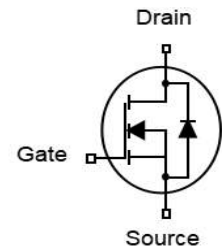
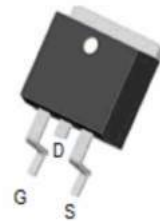


Features

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

V_{DS}	100	V
$R_{DS(on),TYP}@ V_{GS}=10V$	3.0	m Ω
I_D	120	A

TO-263


Part ID	Package Type	Marking	Packing
ZTG030N10B	TO-263	ZTG030N10B	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	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
I_{DM}	Drain Current-Continuous@ Current-Pulsed (Note 1)	$T_c = 25^\circ\text{C}$ 480	A	
Mounted on Large Heat Sink				
I_D	Drain Current-Continuous	$T_c = 25^\circ\text{C}$	120	A
		$T_c = 100^\circ\text{C}$	110	A
P_D	Maximum Power Dissipation	$T_c = 25^\circ\text{C}$	210	W
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.6	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		62.5	$^\circ\text{C/W}$
Drain-Source Avalanche Ratings				
EAS	Avalanche Energy, Single Pulsed (Note 1)		780	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	V _{GS} =10V, I _D =50A	--	3.0	3.8	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) (Note 2,3)						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=0.5MHz	--	6550	--	pF
C _{oss}	Output Capacitance		--	902	--	pF
C _{rss}	Reverse Transfer Capacitance		--	20	--	pF
Q _g	Total Gate Charge	V _{DD} =50V, I _D =20A, V _{GS} =10V	--	113	--	nC
Q _{gs}	Gate-Source Charge		--	38	--	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 =3Ω, V _{GS} =10V	--	32	--	ns
T _r	Turn-on Rise Time		--	54	--	ns
T _{d(off)}	Turn-Off Delay Time		--	75	--	ns
T _f	Turn-Off Fall Time		--	25	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
I _{SD}	Source-Drain Current (Body Diode)		--	--	120	A
V _{SD}	Forward on voltage	I _S =50A, V _{GS} =0V	--	--	1.4	V
T _{rr}	Reverse Recovery Time	T _J =25°C, I _F =50A, di/dt=100A/μs	--	79	--	ns
Q _{rr}	Reverse Recovery Charge		--	0.2	--	uC

Notes:

1. L=0.5mH, I_{AS}=56A, R_G=25Ω, V_{DD}=80V, Start T_J=25°C.
2. Pulse test: pulse width ≤ 300μs, Duty Cycle ≤ 2%.
3. Basically not affected by the operating temperature.

Typical Electrical and Thermal Characteristics

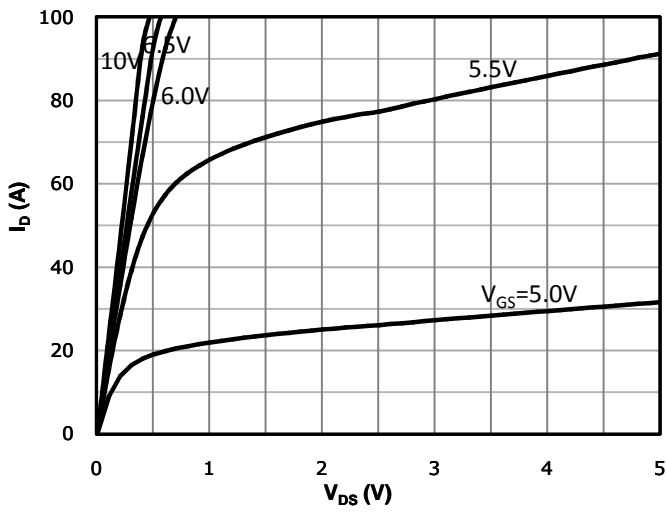


Fig 1: Output Characteristics

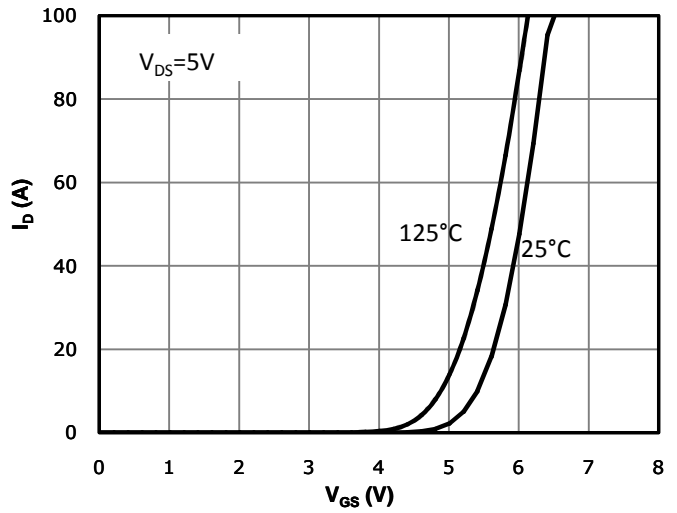


Fig 4: Transfer Characteristics

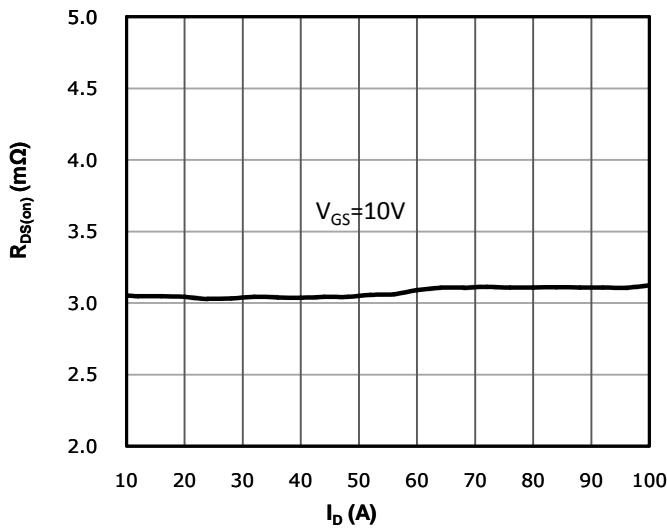


Fig 2: Rds(on) vs Drain Current and Gate Voltage

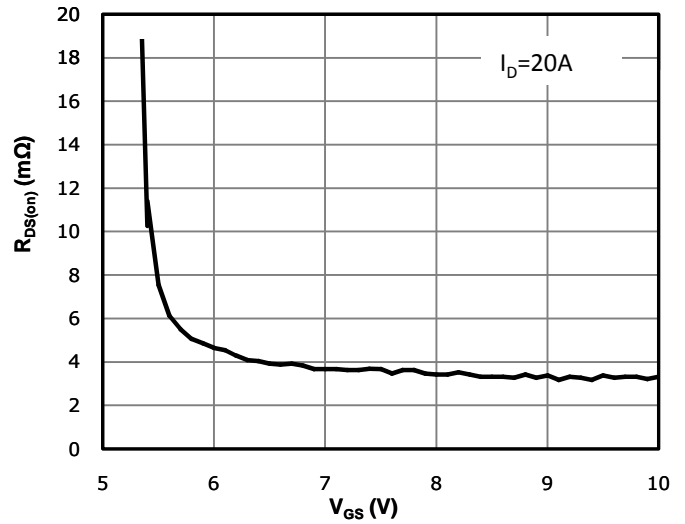


Fig 5: Rds(on) vs Gate Voltage

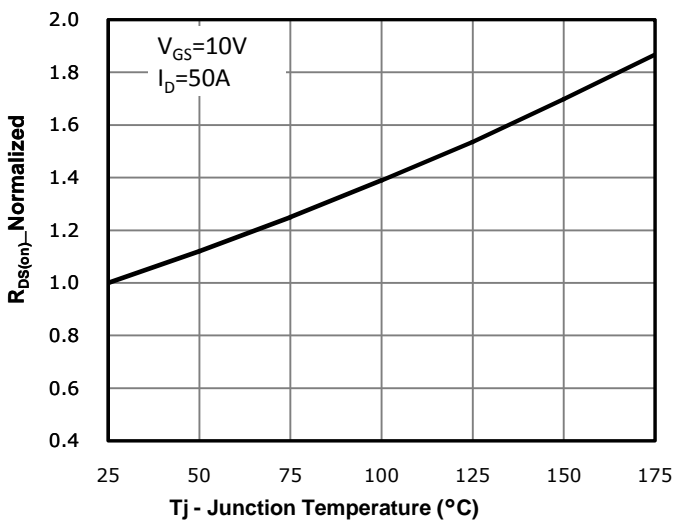


Fig 3: Rds(on) vs. Temperature

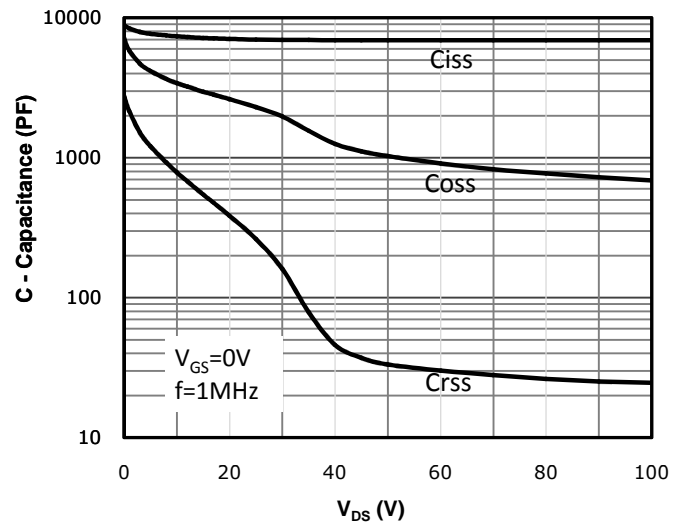


Fig 6: Capacitance Characteristics

Typical Electrical and Thermal Characteristics

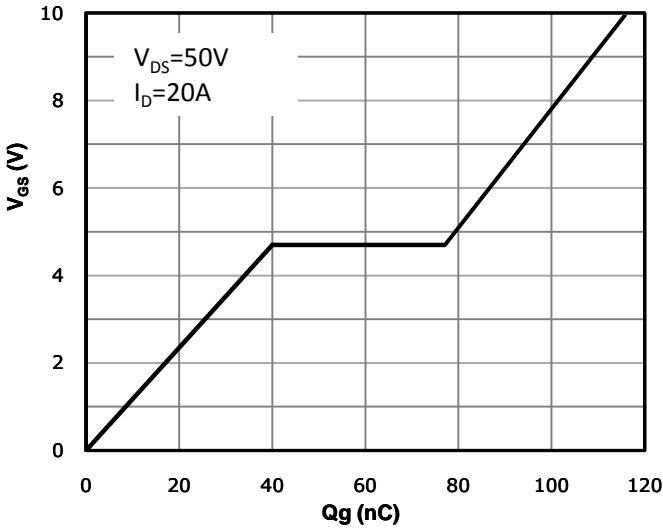


Fig 7: Gate Charge Characteristics

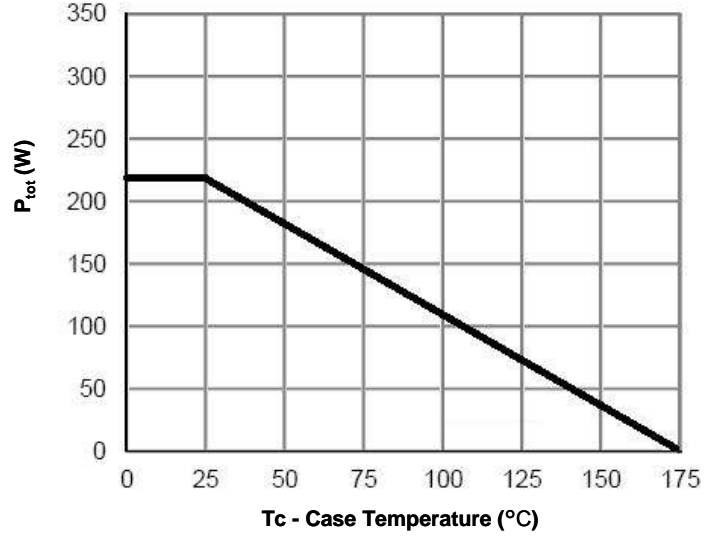


Fig 9: Power Dissipation

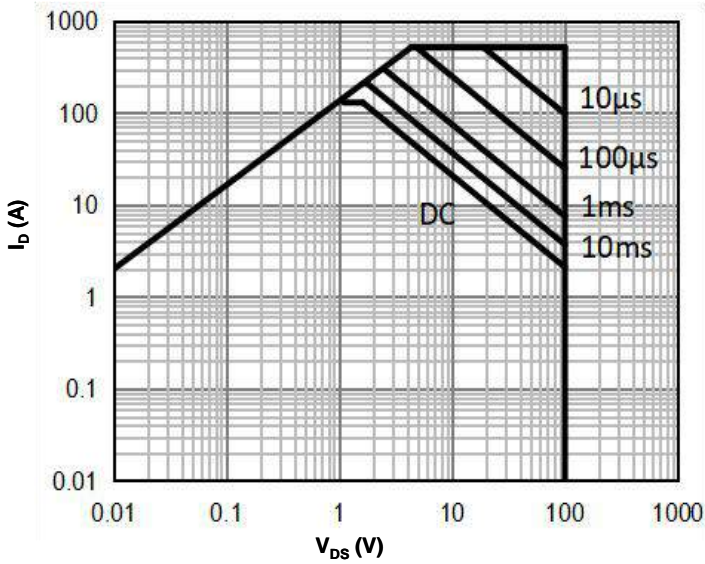


Fig 8: Safe Operating Area

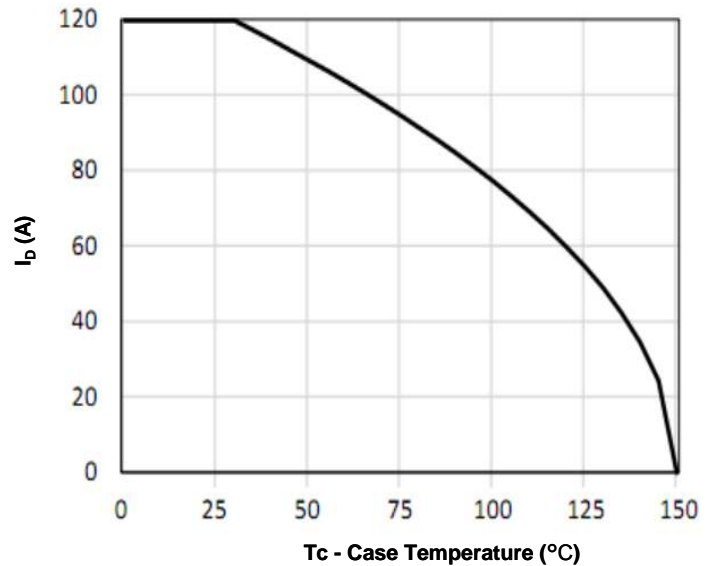


Fig 10: Drain Current Derating

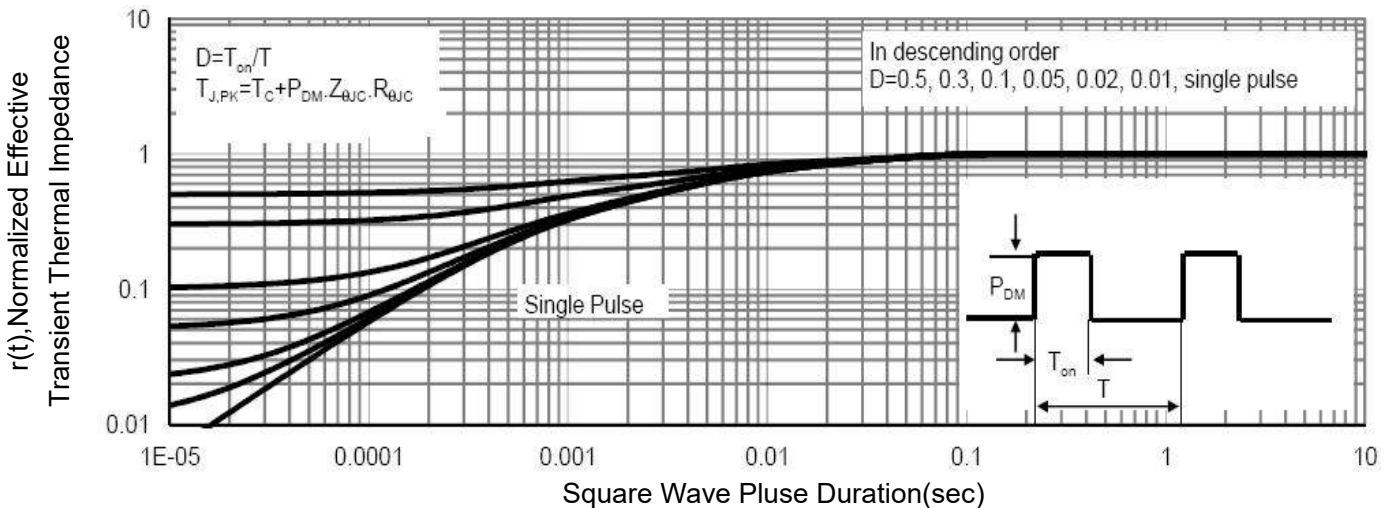


Fig 11: Max. Transient Thermal Impedance

Figure A: Gate Charge Test Circuit and Waveform

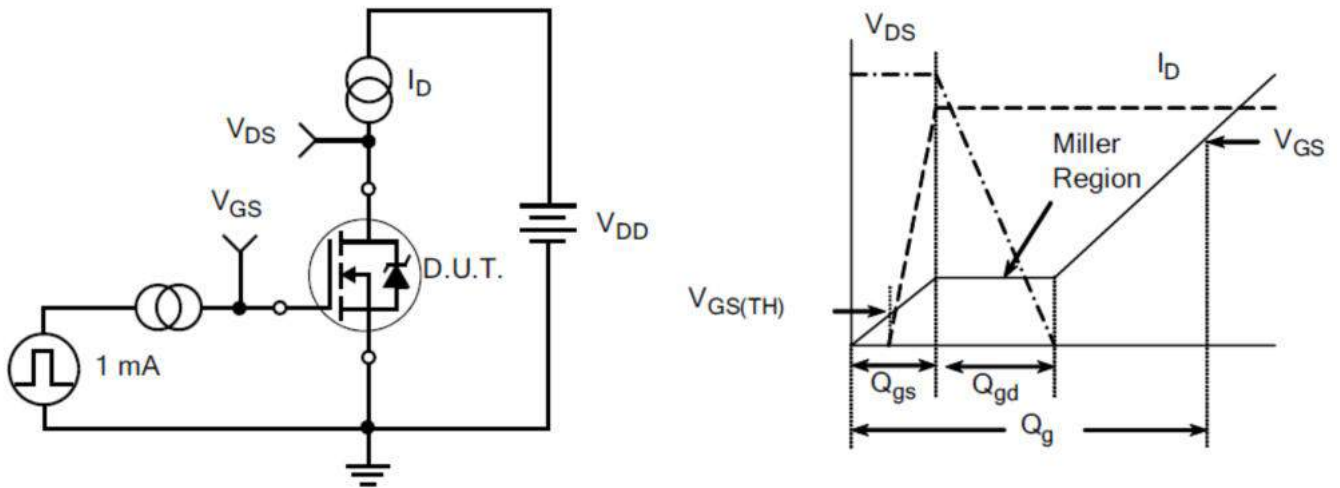


Figure B: Resistive Switching Test Circuit and Waveform

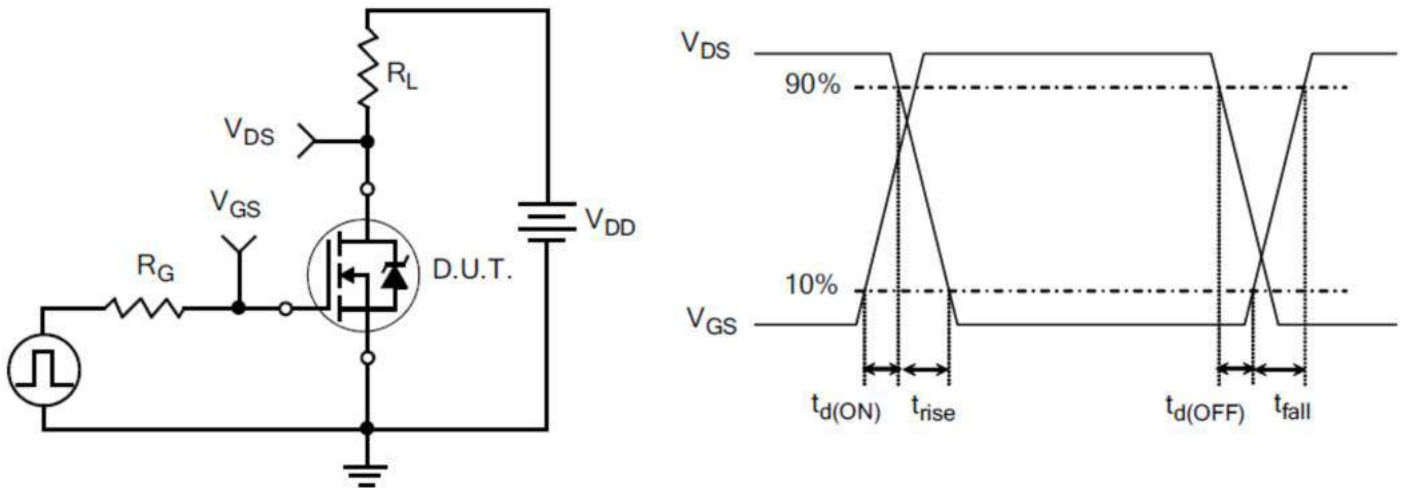
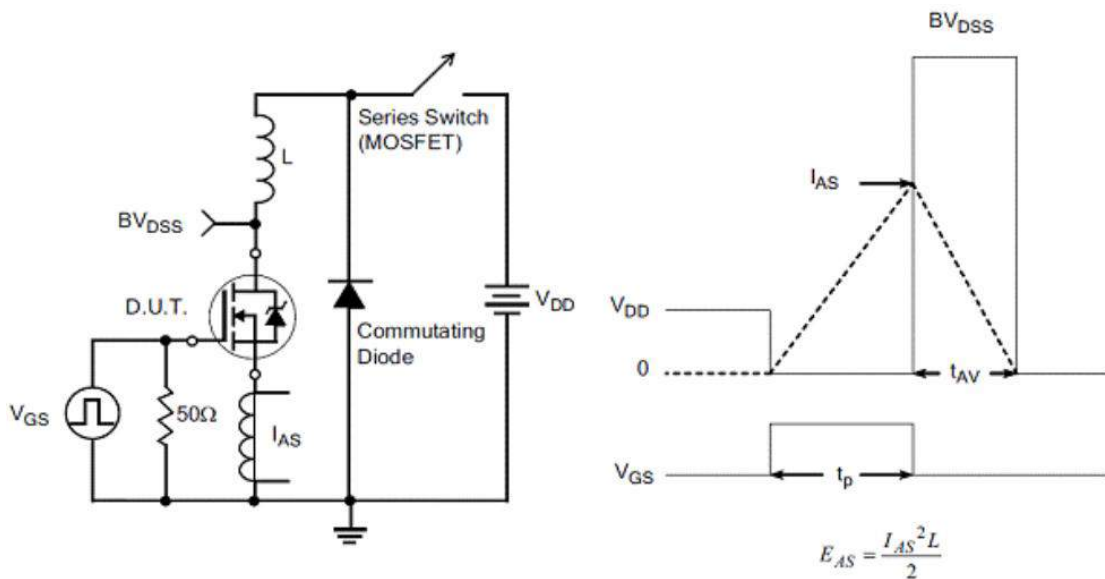
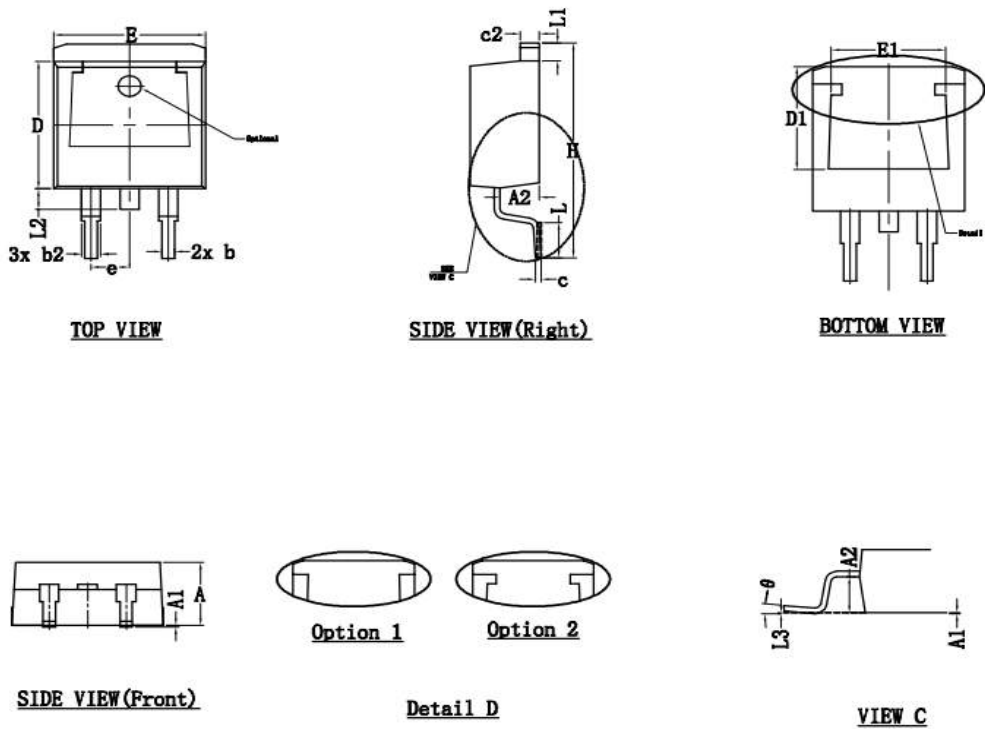


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



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