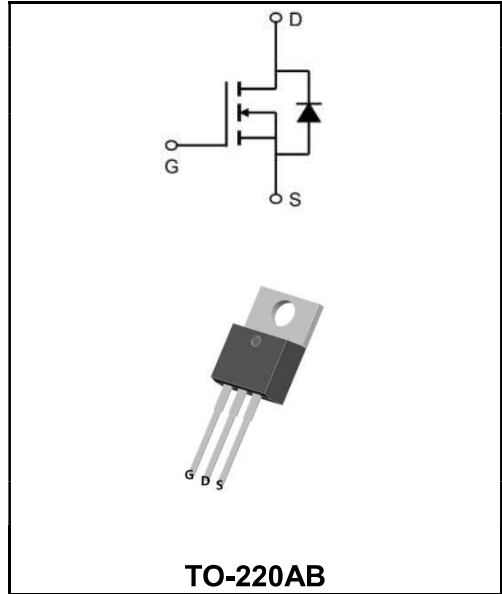


55V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	110A
V_{DSS}	55V
R_{DS(on)-typ(@V_{GS}=10V)}	< 8.0mΩ (Type:7.2 mΩ)



Application

- ◆Uninterruptible Power Supply(UPS)
- ◆Power Factor Correction (PFC)

Product Specification Classification

Part Number	Package	Marking	Pack
YFW3205AT	TO-220AB	YFW 3205AT XXXXX	1000PCS/Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	55	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current @T _c =25°C	I_D	110	A
Continuous Drain Current @T _c =100°C	I_D	80	A
Pulsed Drain Current ^{note1}	I_{DM}	390	A
Power Dissipation @T _c =25°C	P_D	200	W
Thermal Resistance Junction to-Case	R_{θJC}	0.75	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	55	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=55V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1.0	μA
	$V_{DS}=0V, V_{GS}=\pm 20V$		-	-	10	
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	2.0	-	4.0	V
Static Drain-Source on-Resistance note2	$V_{GS}=10V, I_D=30A$	R_{DS(ON)}	-	7.2	8.0	mΩ
Forward Transconductance	$V_{DS}=20V, I_D=30A$	g_{FS}	45	-	-	S
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	3291	-	pF
Output Capacitance		C_{oss}	-	671.5	-	
Reverse Transfer Capacitance		C_{rss}	-	112.1	-	
Total Gate Charge	$V_{DD}=44V$ $V_{GS}=10V$ $I_D=30A$	Q_g	-	112	-	nC
Gate-Source Charge		Q_{gs}	-	23.2	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	34.9	-	
Turn-on delay time	$V_{DD}=28V$ $I_D=30A$ $R_G=5\Omega$ $V_{GS}=10V$	t_{d(on)}	-	19.5	-	ns
Turn-on Rise Time		T_r	-	50.7	-	
Turn-Off Delay Time		t_{d(OFF)}	-	55	-	
Turn-Off Fall Time		t_f	-	24.6	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	110	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	390	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	V_{SD}	-	-	1.3	V
Body Diode Reverse Recovery Time	$V_{GS}=0V, I_F=30A, dI/dt=100A/\mu s$	t_{rr}	-	62.3	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	137	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300μs, Duty Cycles≤2%

Ratings and Characteristic Curves

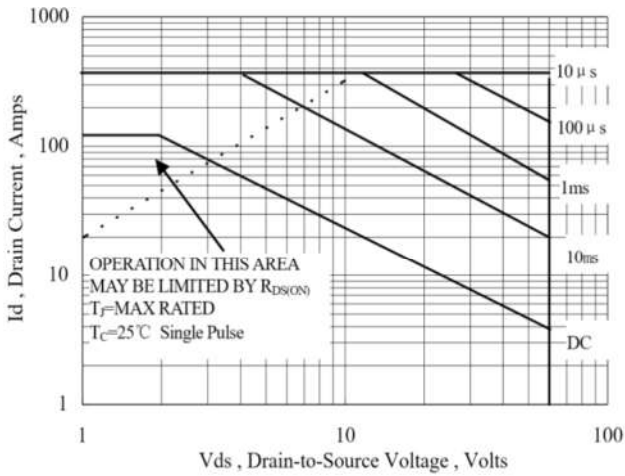


Figure 1 Maximum Forward Bias Safe Operating Area

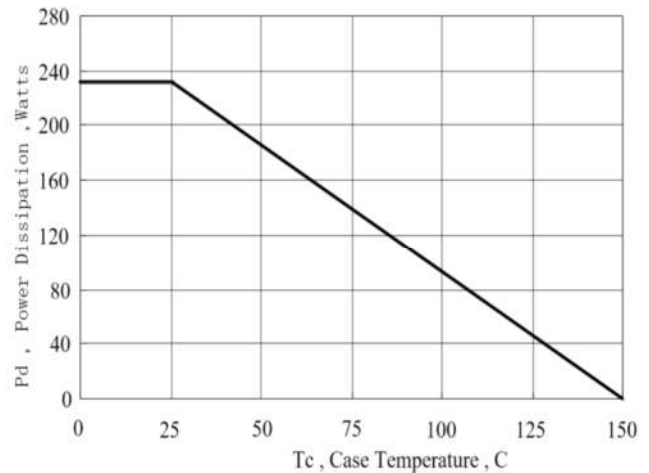


Figure 2 Maximum Power Dissipation vs Case Temperature

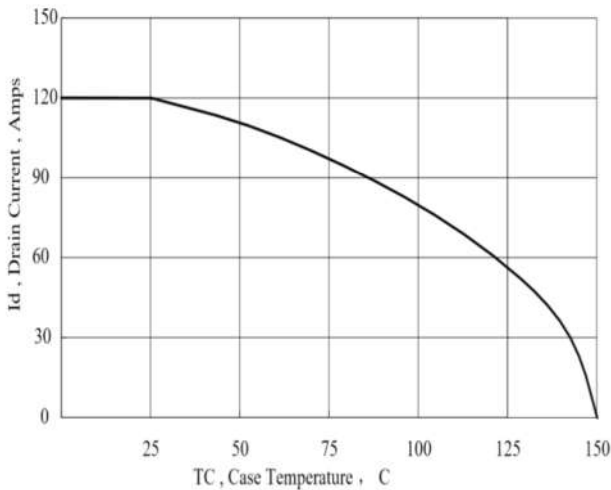


Figure 3 Maximum Continuous Drain Current vs Case Temperature

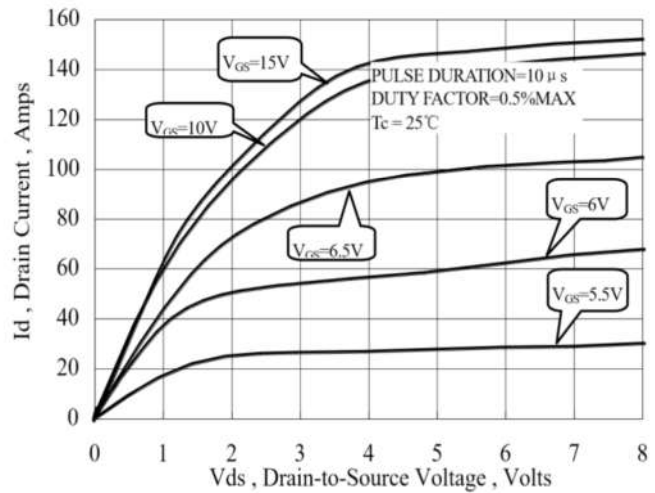


Figure 4 Typical Output Characteristics

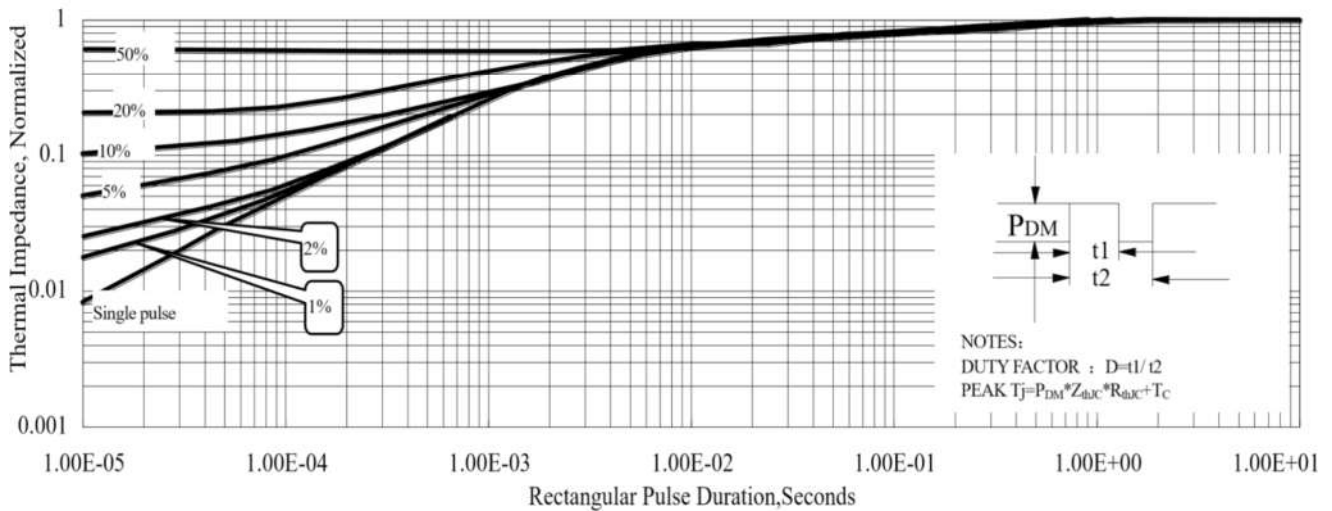


Figure 5 Maximum Effective Thermal Impedance , Junction to Case

Ratings and Characteristic Curves

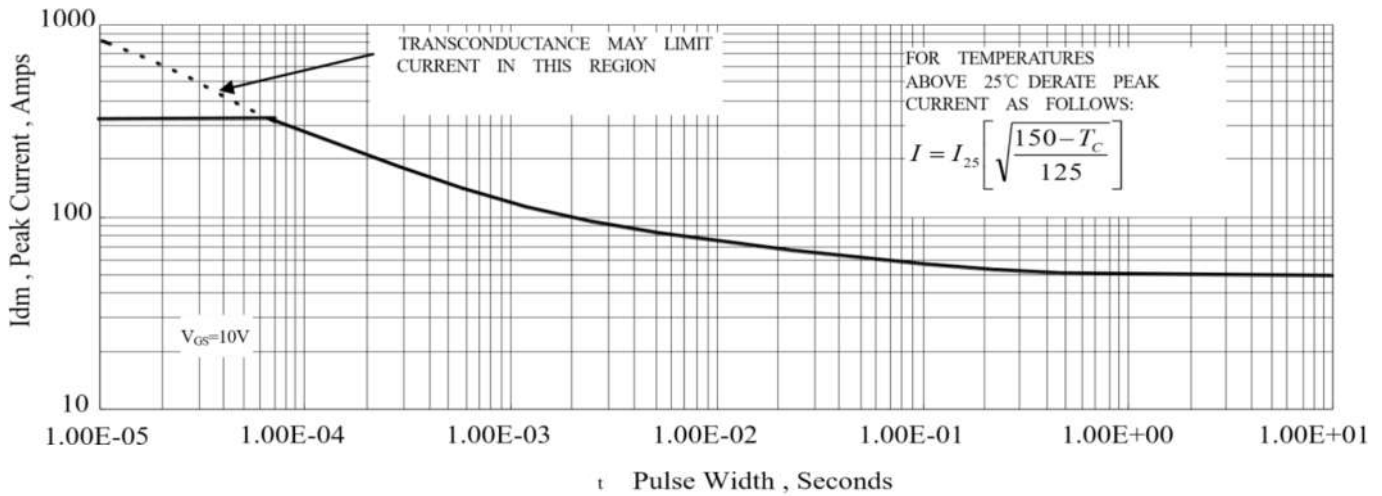


Figure 6 Maximum Peak Current Capability

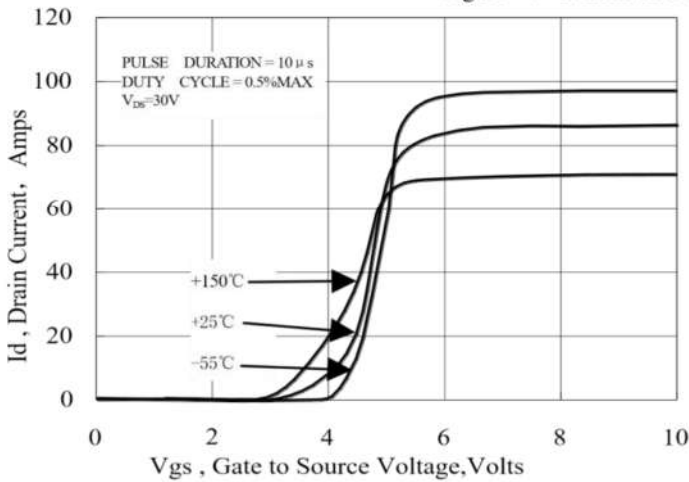


Figure 7 Typical Transfer Characteristics

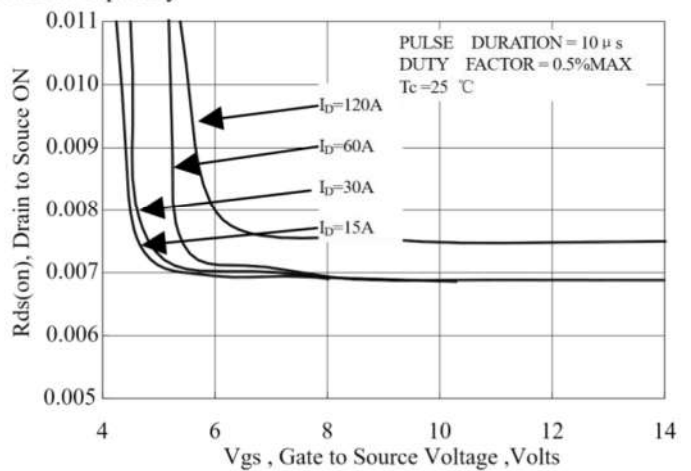


Figure 8 Typical Drain to Source ON Resistance vs Gate Voltage and Drain Current

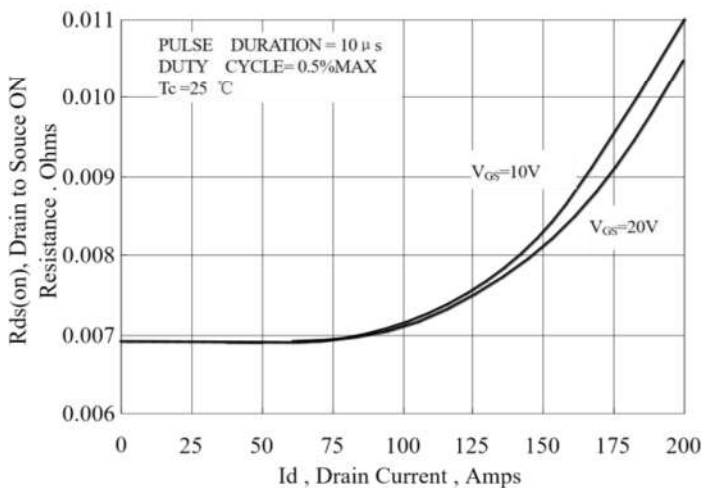


Figure 9 Typical Drain to Source ON Resistance vs Drain Current

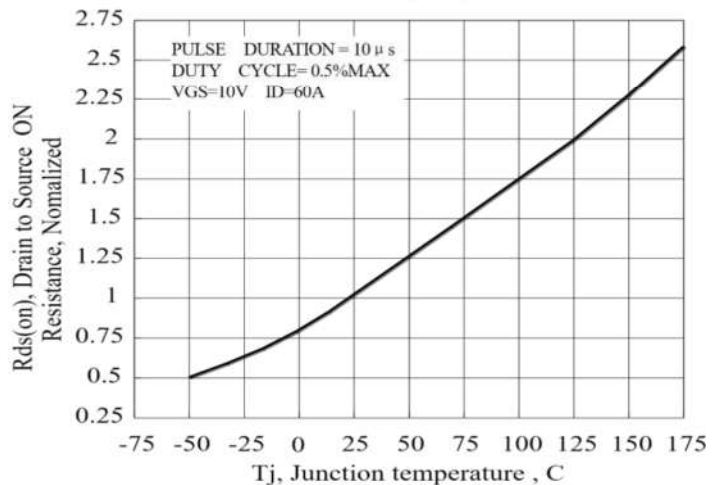


Figure 10 Typical Drain to Source on Resistance vs Junction Temperature

Test Circuit and Waveform

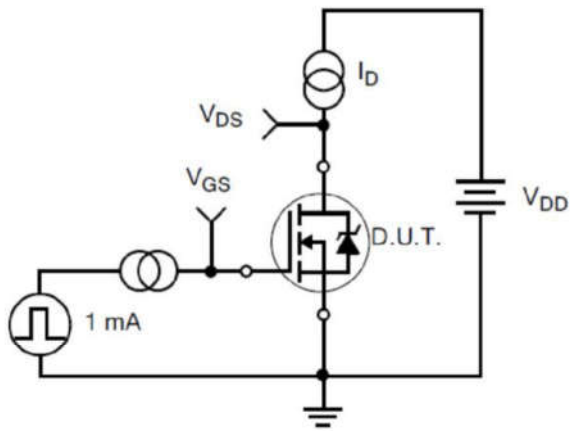


Figure 17. Gate Charge Test Circuit

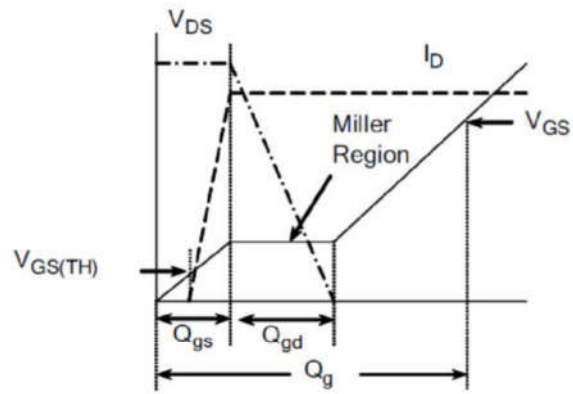


Figure 18. Gate Charge Waveform

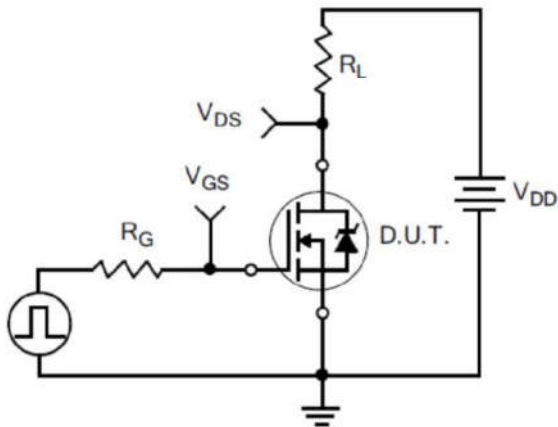


Figure 19. Resistive Switching Test Circuit

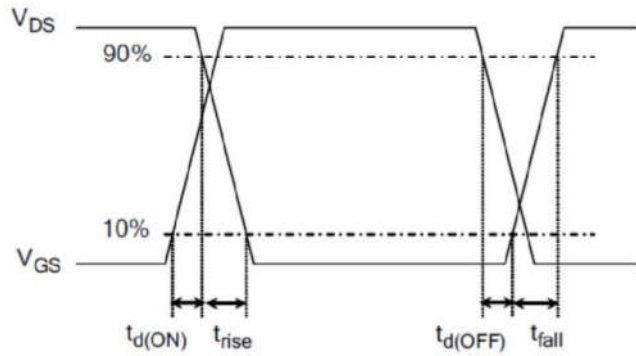


Figure 20. Resistive Switching Waveforms

Ratings and Characteristic Curves

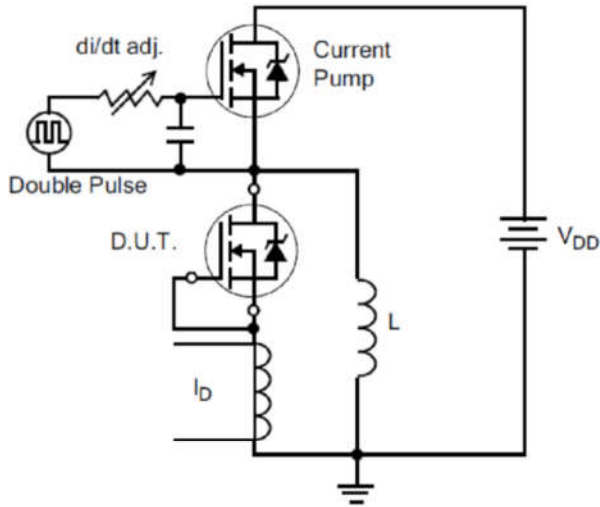


Figure 21. Diode Reverse Recovery Test Circuit

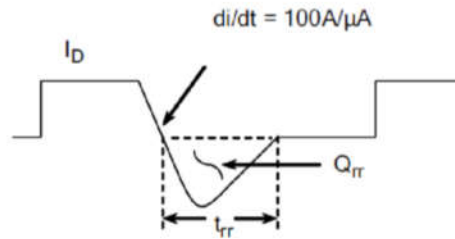


Figure 22. Diode Reverse Recovery Waveform

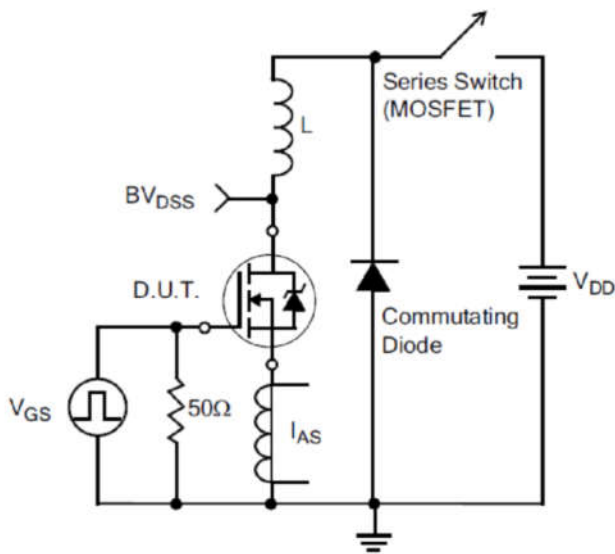


Figure 23. Unclamped Inductive Switching Test Circuit

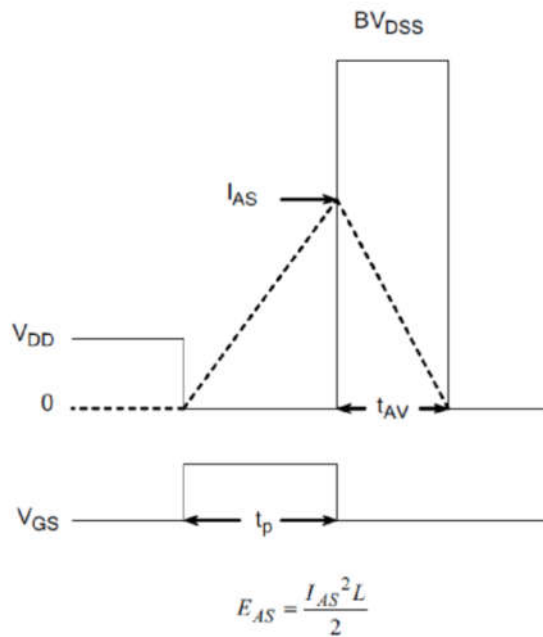


Figure 24. Unclamped Inductive Switching Waveforms

Package Outline Dimensions Millimeters

TO-220AB

Dim.	Min.	Max.
A	10.15	10.35
B	2.65	2.95
C	3.70	3.90
D	28.5	29.5
E	1.30	1.45
F	6.35	6.55
G	2.9	3.3
H	15.0	16.0
I	0.38	0.42
J	4.45	4.55
K	1.25	1.35
L	Typ 5.08	
M	Typ 2.54	
N	3.1	3.3
O	0.76	0.84
All Dimensions in millimeter		

