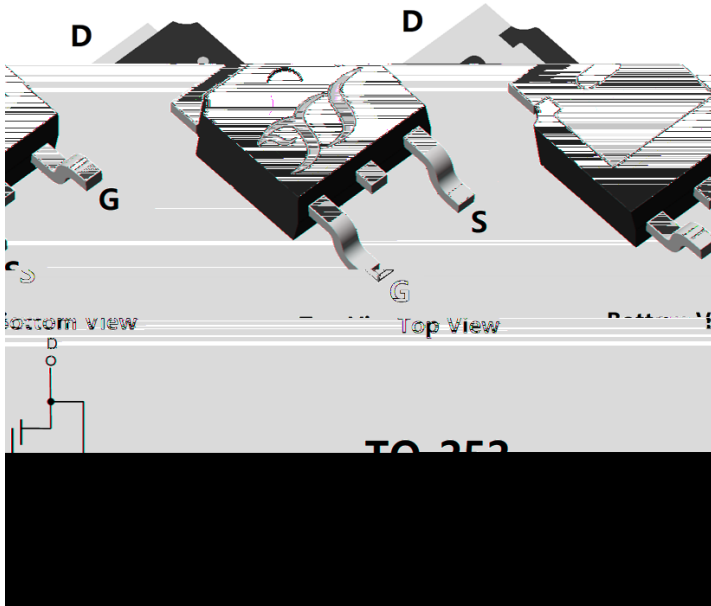




## N-Channel Enhancement Mode Field Effect Transistor



### Product Summary

$V_{DS}$	60V
$I_D$	20A
$r_{DS(ON)}$ (at $V_{GS}=10V$ )	43mohm
$r_{DS(ON)}$ (at $V_{GS}=4.5V$ )	47mohm
100% EAS Tested	
100% $V_{DS}$ Tested	

### General Description

MV MOSFET technology  
 Excellent package for heat dissipation  
 High density cell design for low  $R_{DS(ON)}$   
 Moisture Sensitivity Level 1  
 Epoxy Meets UL 94 V-0 Flammability Rating  
 Halogen Free

### Applications

DC-DC Converters  
 Power management functions  
 Backlighting

### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		$V_{DS}$	60	V
Gate-source Voltage		$V_{GS}$	20	V
Drain Current	$T_A=25^\circ\text{C}$	$I_D$	4	A
	$T_A=100^\circ\text{C}$		2.5	
	$T_C=25^\circ\text{C}$		20	
	$T_C=100^\circ\text{C}$		12	
Pulsed Drain Current <sup>A</sup>		$I_{DM}$	60	A
Total Power Dissipation <sup>B</sup>	$T_A=25^\circ\text{C}$	$P_D$	1.5	W
	$T_A=100^\circ\text{C}$		0.6	
	$T_C=25^\circ\text{C}$		28	
	$T_C=100^\circ\text{C}$		11	
Single Pulse Avalanche Energy <sup>C</sup>		$E_{AS}$	30	mJ
Thermal Resistance Junction-to-Ambient <sup>D</sup>	Steady-State	$R_{\theta JA}$	80	/W
	Steady-State	$R_{\theta JC}$	4.4	
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 +150	

### Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJD20N06A	F1/F2	YJD20N06A	2500	/	25000	13 reel



# YJD20N06A

## Electrical Characteristics ( $T_J=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250$	60			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$	$T_J=25$		1	
			$T_J=150$		100	
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=20V, V_{DS}=0V$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250$	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$		34	43	m
		$V_{GS}=4.5V, I_D=10A$		36	47	
Diode Forward Voltage	$V_{SD}$	$I_S=10A, V_{GS}=0V$		0.8	1.2	V
Maximum Body-Diode Continuous Current	$I_S$				20	



Typical Performance Characteristics

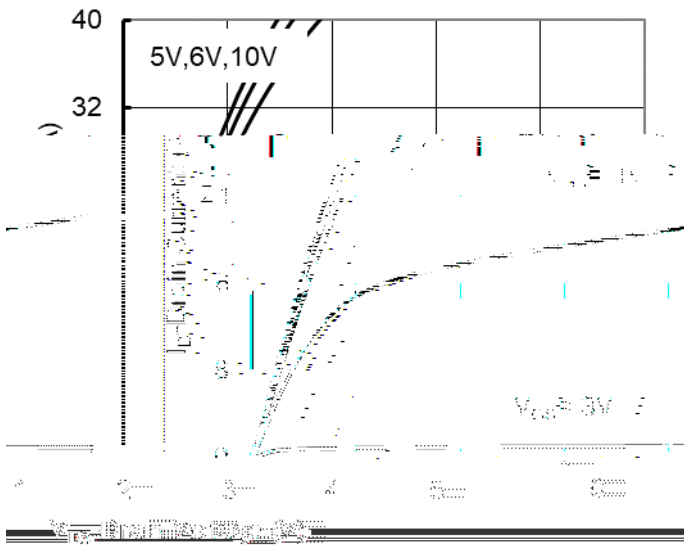


Figure 1. Output Characteristics

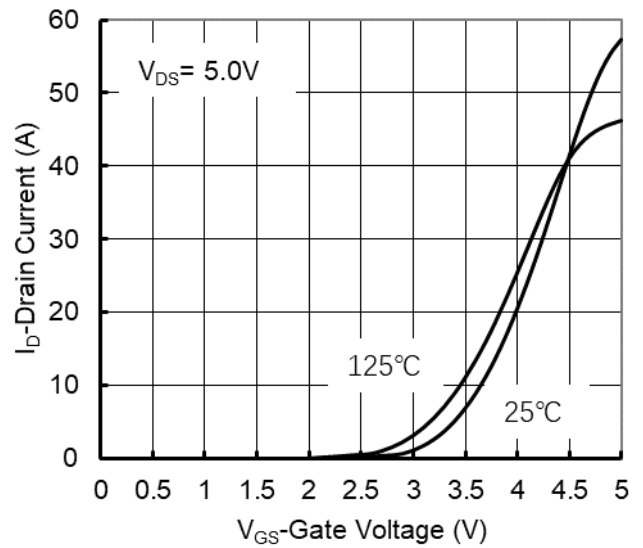


Figure 2. Transfer Characteristics

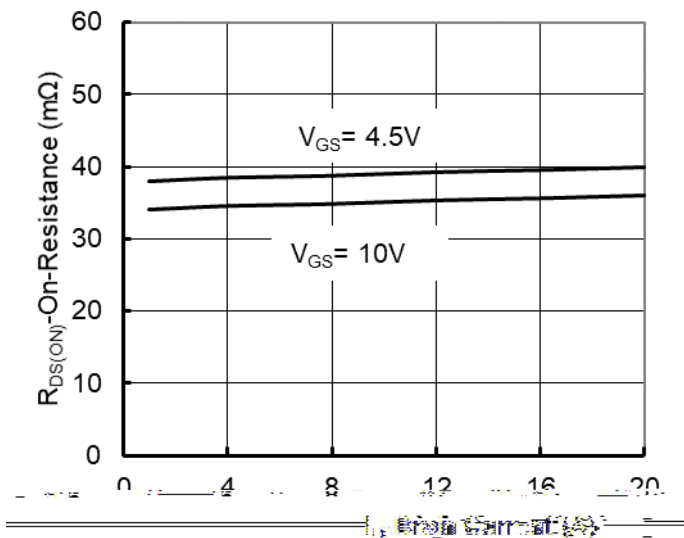


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

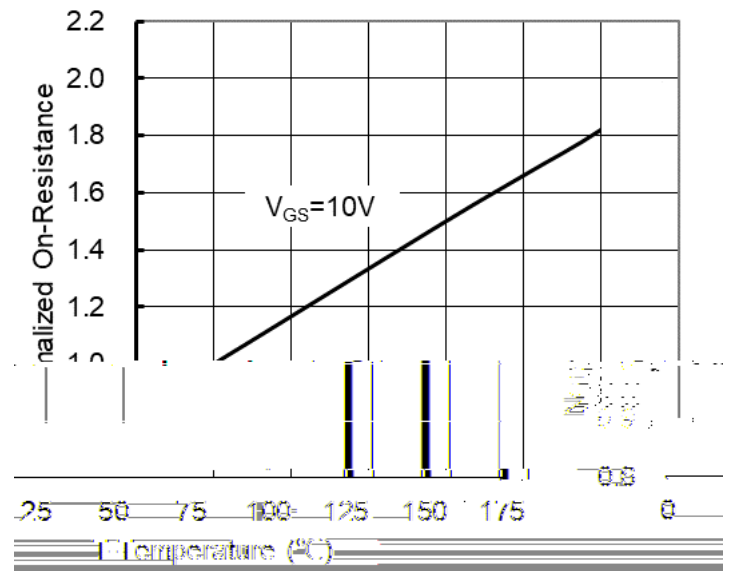


Figure 4. On-Resistance vs. Junction Temperature

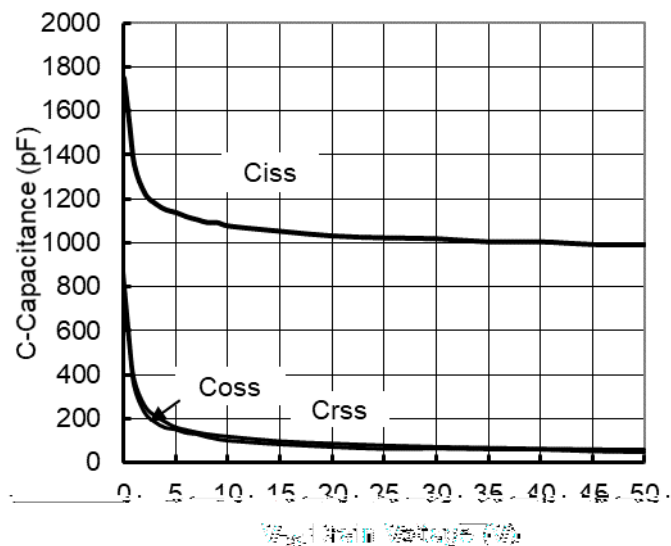


Figure 5. Capacitance Characteristics

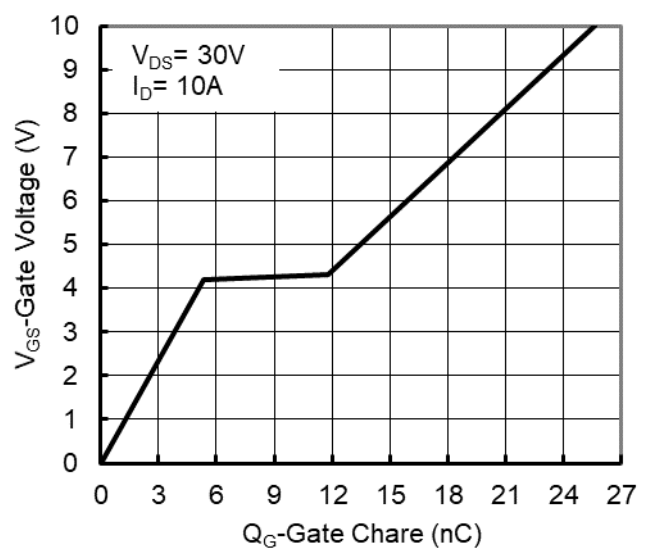


Figure 6. Gate Charge



# YJD20N06A

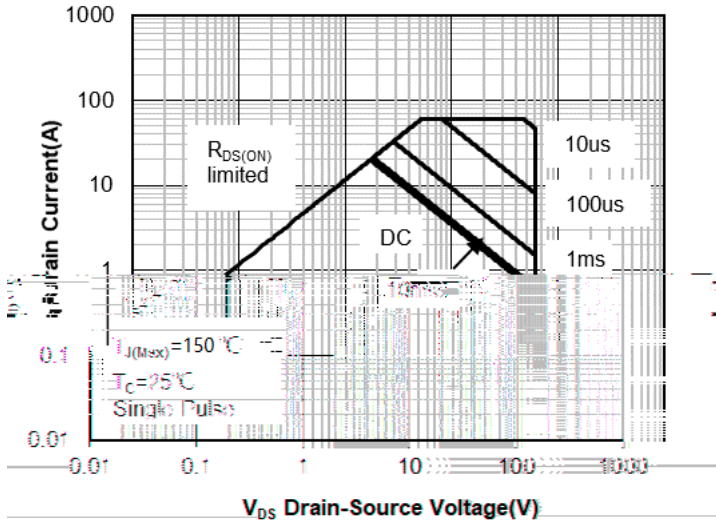


Figure 7. Safe Operation Area

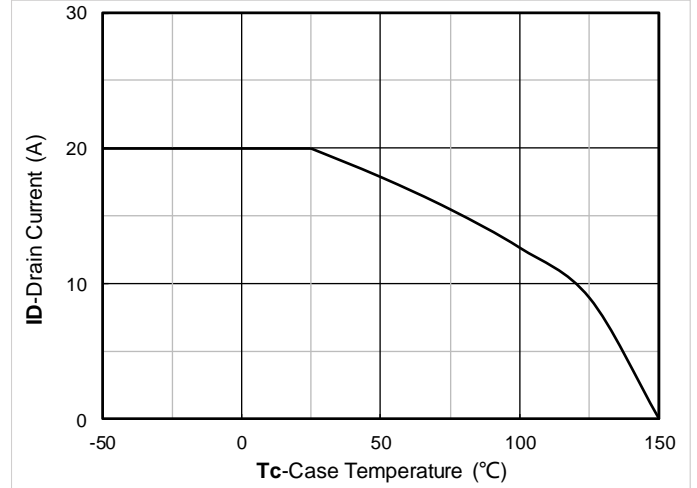


Figure 8. Maximum Continuous Drain Current

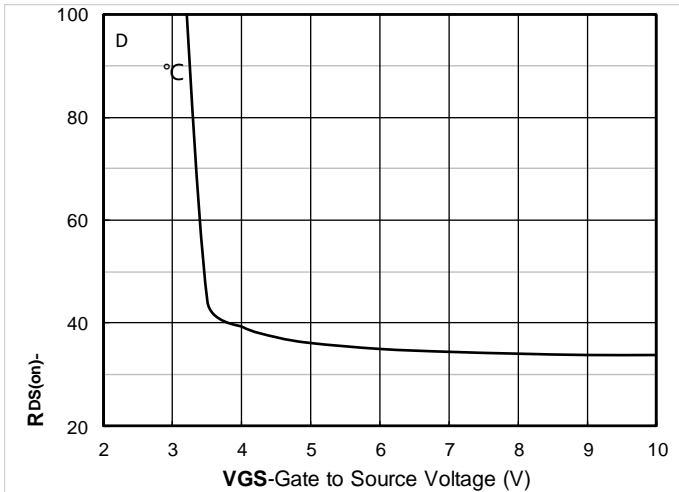


Figure 9. On-Resistance vs Gate to Source Voltage

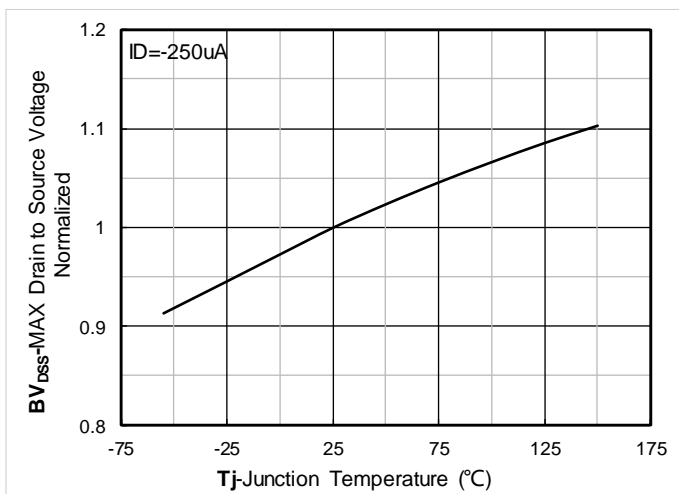


Figure 11. Normalized breakdown voltage



# YJD20N06A

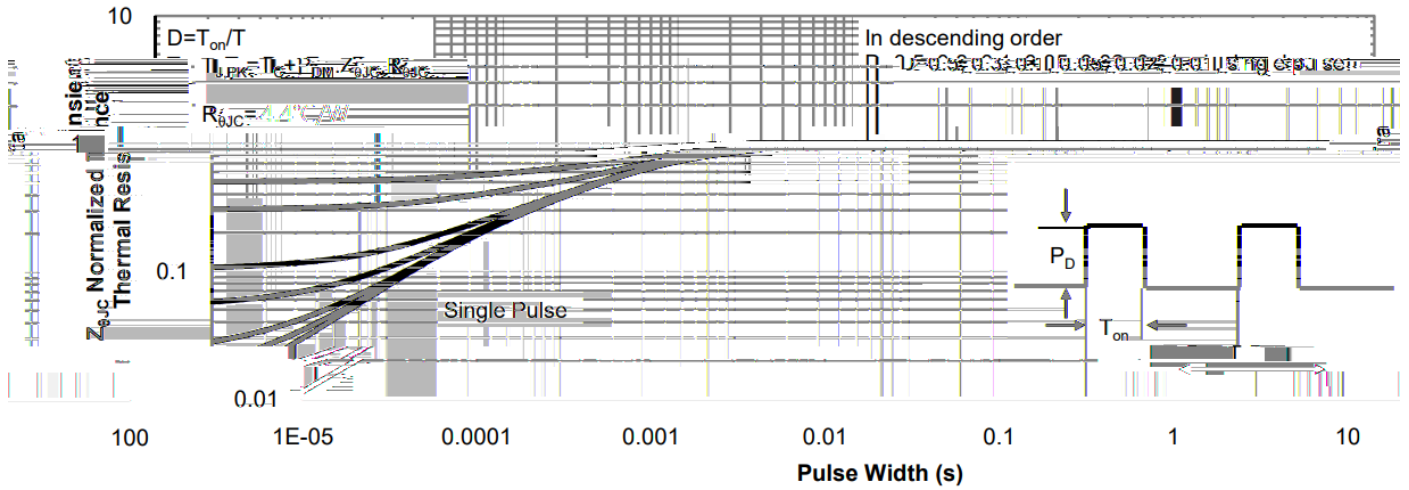
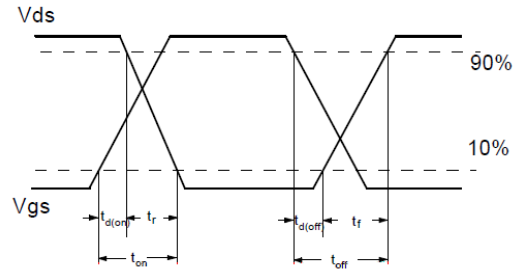
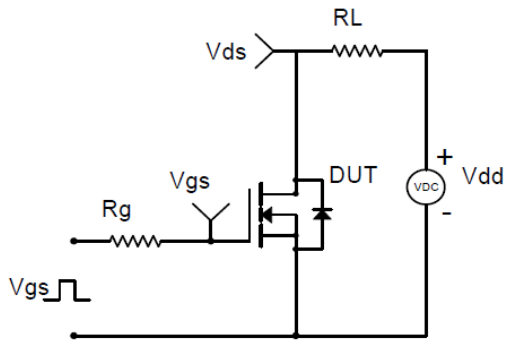
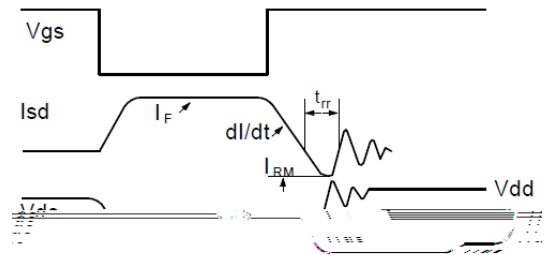
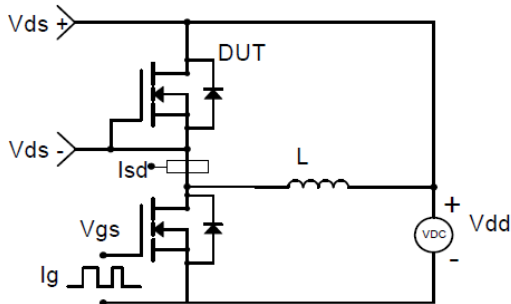


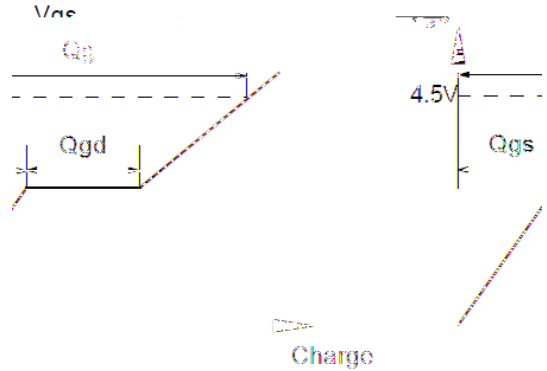
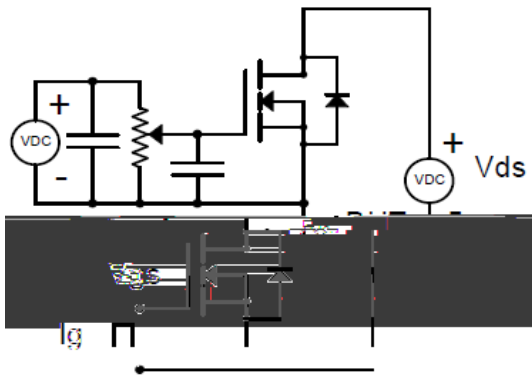
Figure 13. Normalized Maximum Transient Thermal Impedance



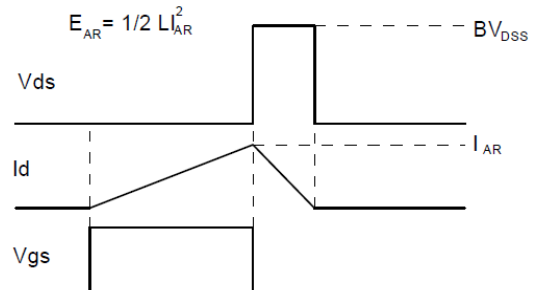
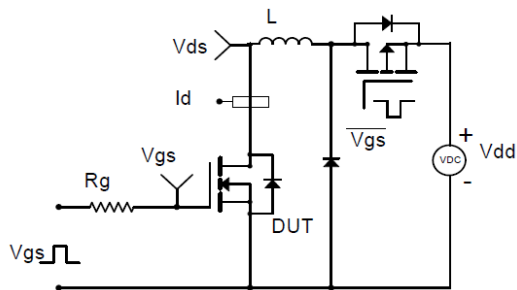
**Resistive Switching Test Circuit & Waveforms**



**Diode Recovery Test Circuit & Waveforms**



**Gate Charge Test Circuit & Waveform**

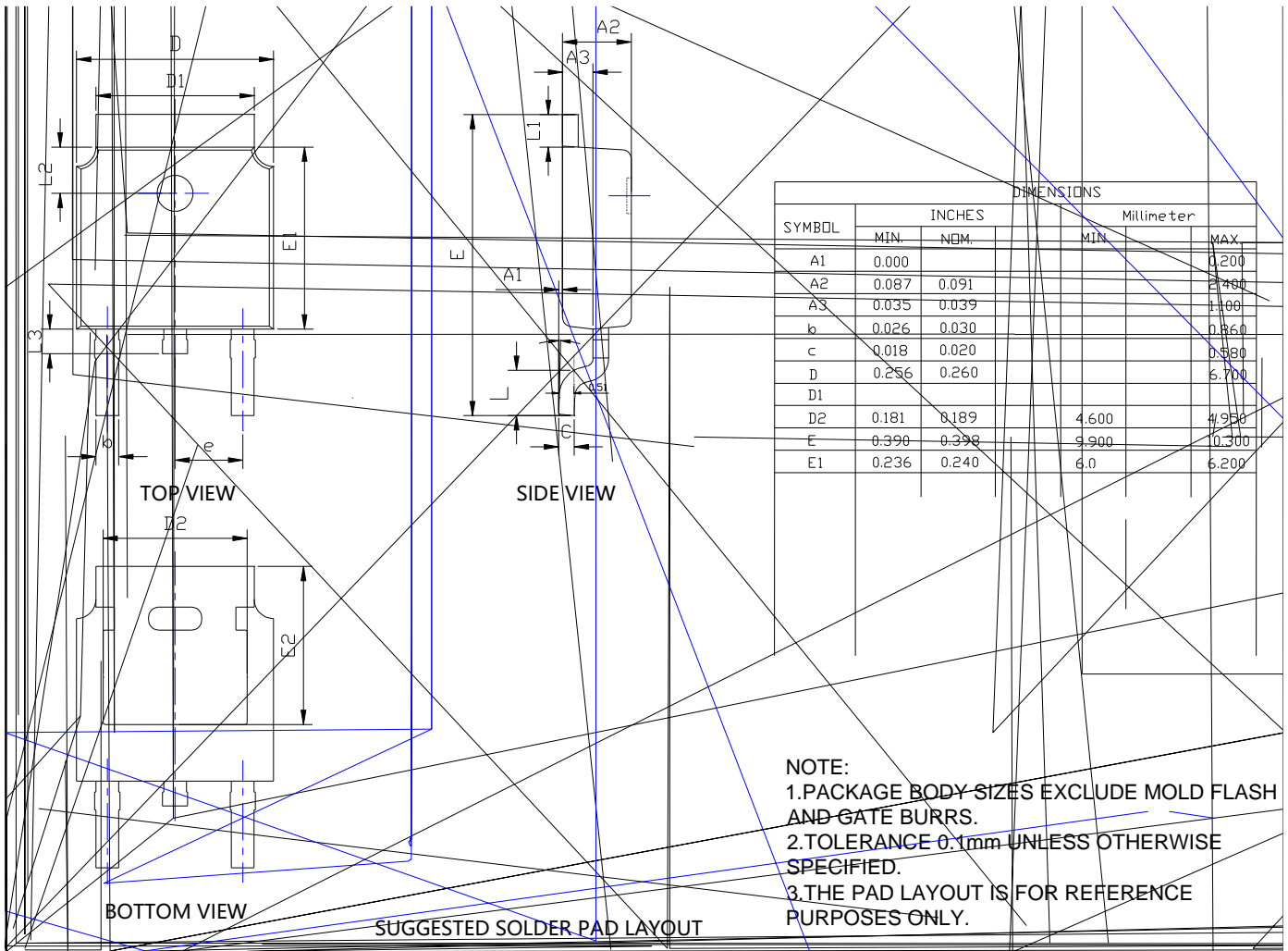


**Unclamped Inductive Switching (UIS) Test Circuit & Waveforms**



# YJD20N06A

## TO-252-B Package information





## YJD20N06A

---

### Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com)