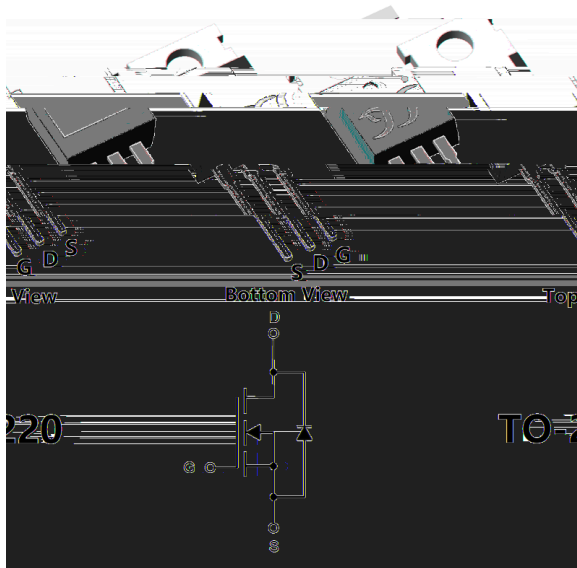




## N-Channel Enhancement Mode Field Effect Transistor



### Product Summary

$V_{DS}$	40V
$I_D$	180A
$R_{DS(ON)}$ (at $V_{GS}=10V$ )	2.0m
$R_{DS(ON)}$ (at $V_{GS}=4.5V$ )	2.5m
100% EAS Tested	
100% $V_{DS}$ Tested	

### General Description

-0 Flammability Rating

### Applications

Power switching application

### Absolute Maximum Ratings ( $T_A=25$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		$V_{DS}$	40	V
Gate-source Voltage		$V_{GS}$	$\pm 20$	V
Drain Current	$T_A=25^\circ C$	$I_D$	30	A
	$T_A=100^\circ C$		19	
	$T_C=25^\circ C$		180	
	$T_C=100^\circ C$		113	
Pulsed Drain Current <sup>A</sup>		$I_{DM}$	720	A
Avalanche energy <sup>B</sup>		EAS	864	mJ
Total Power Dissipation <sup>C</sup>	$T_A=25^\circ C$	$P_D$	6.2	W
	$T_A=100^\circ C$		2.5	
	$T_C=25^\circ C$		312	
	$T_C=100^\circ C$		125	
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 +150	$^\circ C$

### Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient <sup>D</sup>	Steady-State	R	15	20	$^\circ C/W$
Thermal Resistance Junction-to-Case	Steady-State	R	0.3	0.4	

### Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJP180G04C	B1	YJP180G04C	50	/	5000	Tube



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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D$	40	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=40V, V_{GS}=0V$	-			



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## Typical Electrical and Thermal Characteristics Diagrams

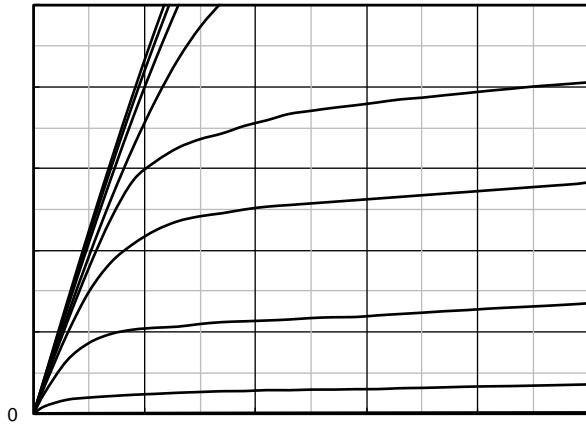


Figure 1. Output Characteristics

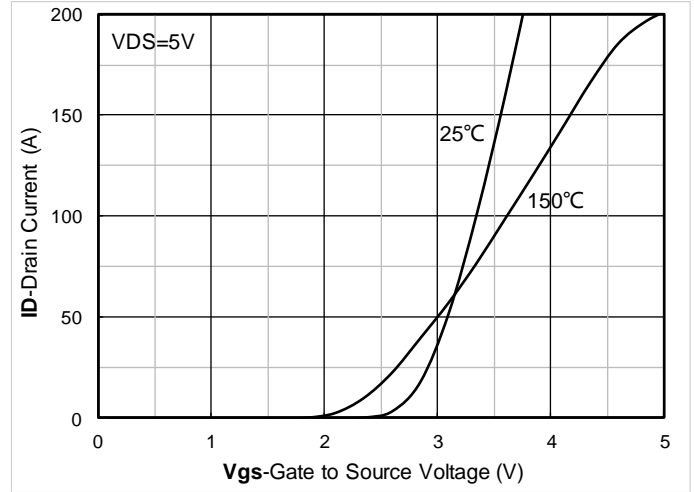


Figure 2. Transfer Characteristics

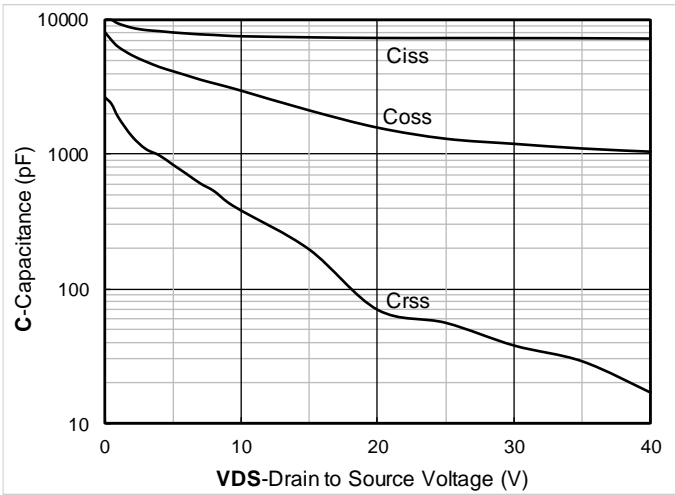


Figure 3. Capacitance Characteristics

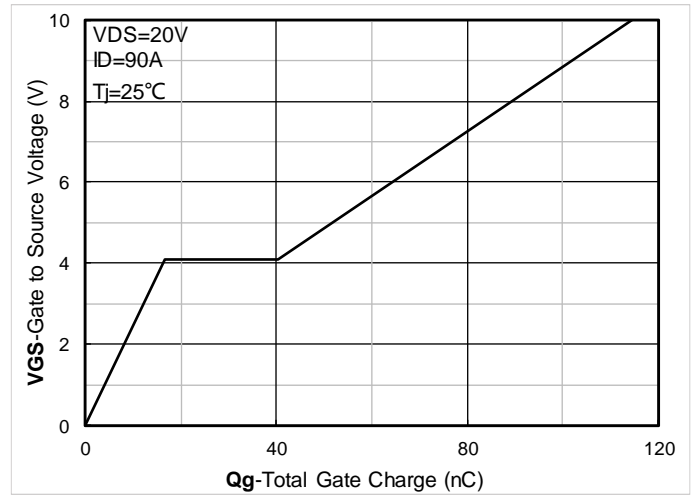


Figure 4. Gate Charge

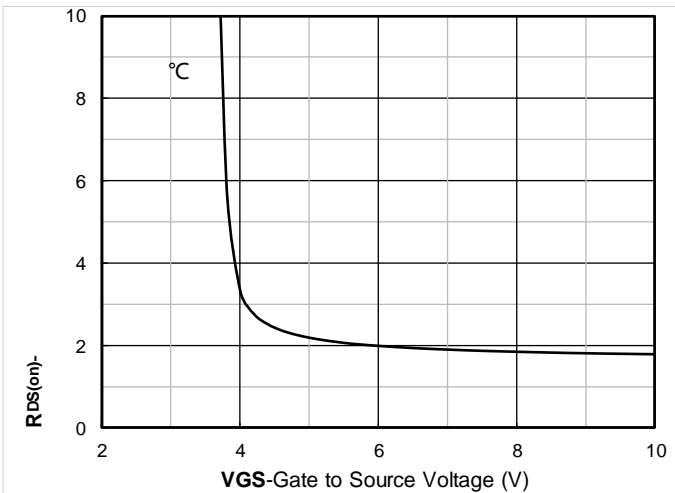


Figure 5. On-Resistance vs Gate to Source Voltage

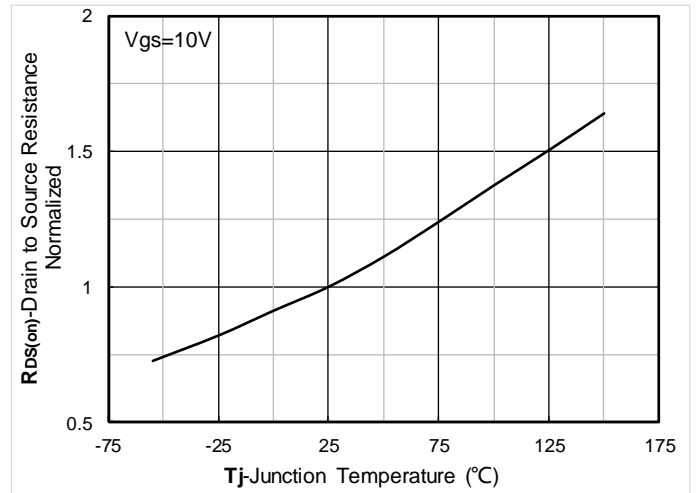


Figure 6. Normalized On-Resistance



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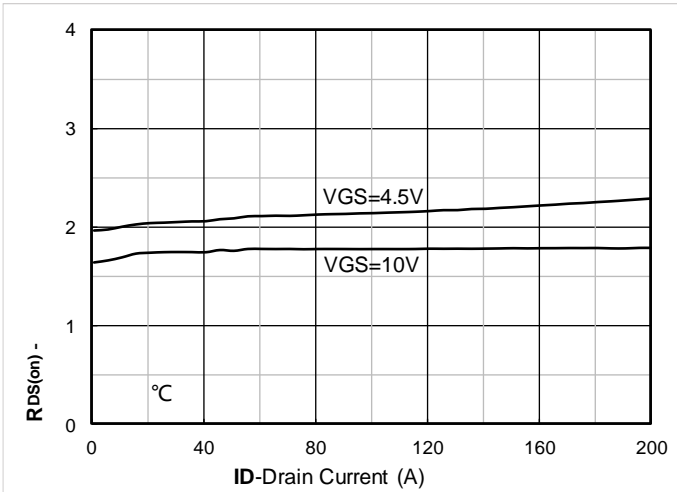


Figure 7.  $R_{DS(on)}$  VS Drain Current

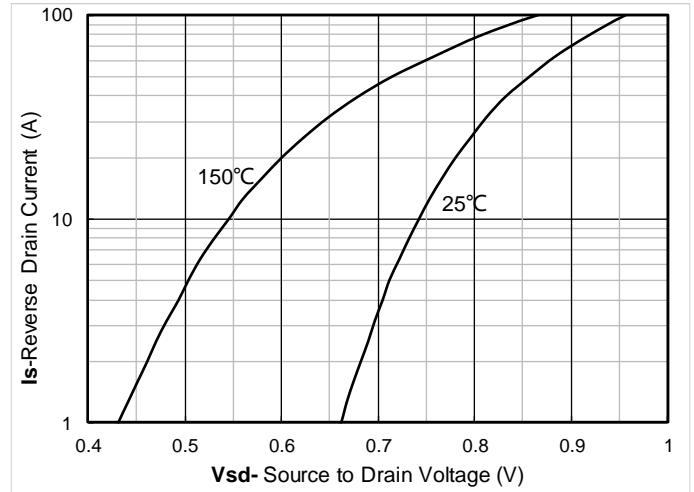


Figure 8. Forward characteristics of reverse diode

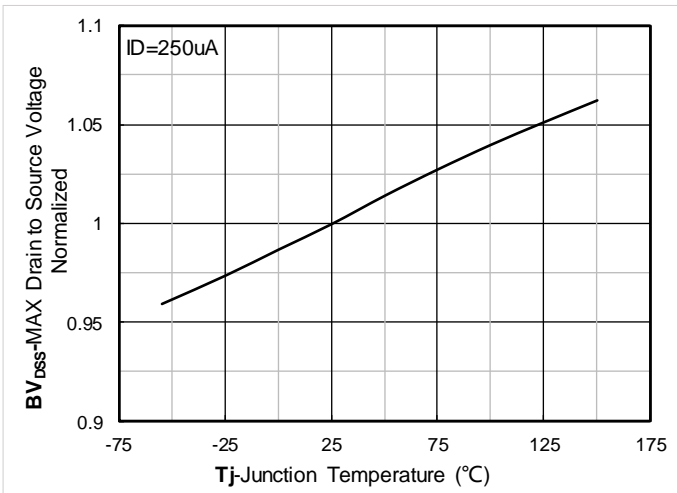


Figure 9. Normalized breakdown voltage

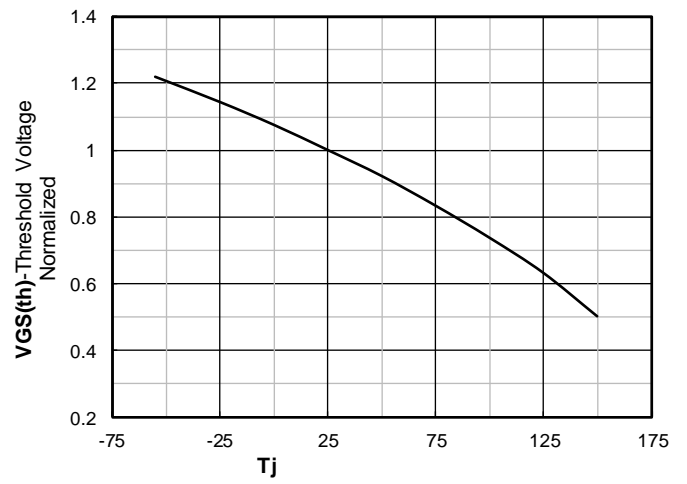


Figure 10. Normalized Threshold voltage

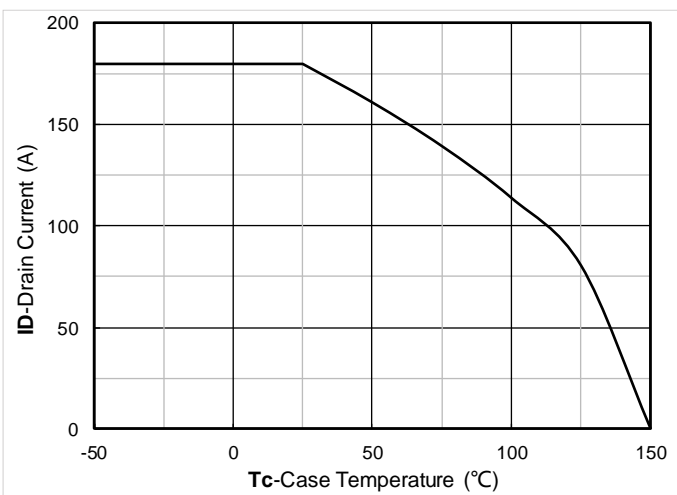


Figure 11. Current dissipation

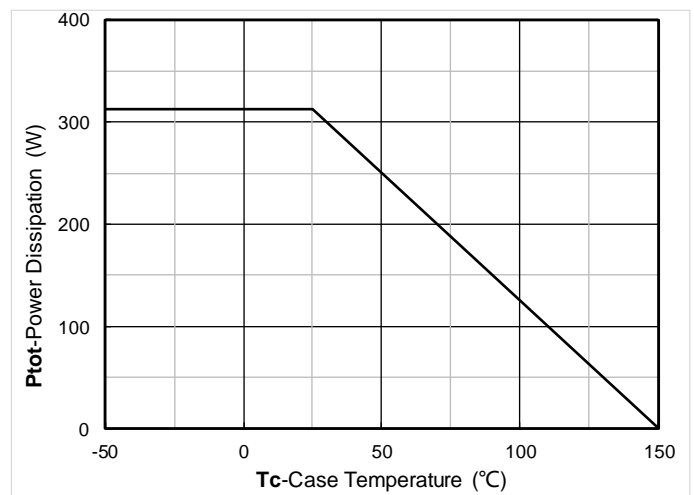


Figure 12. Power dissipation

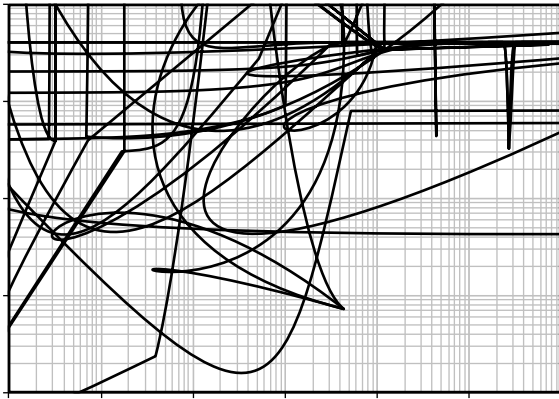


Figure 13. Maximum Transient Thermal Impedance

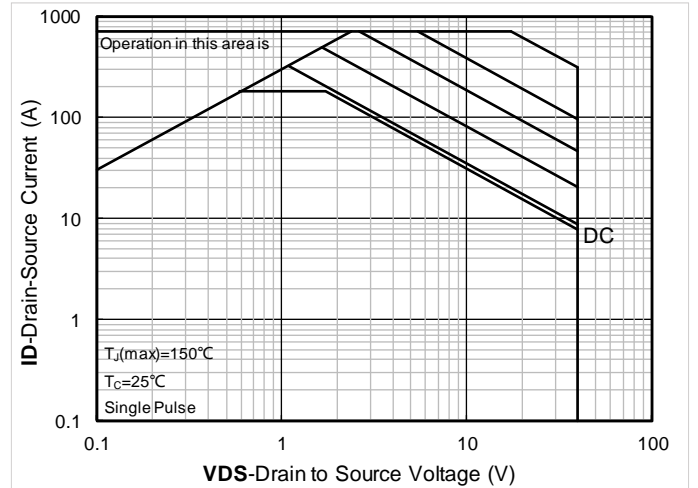


Figure 14. Safe Operation Area

## Test Circuits & Waveforms

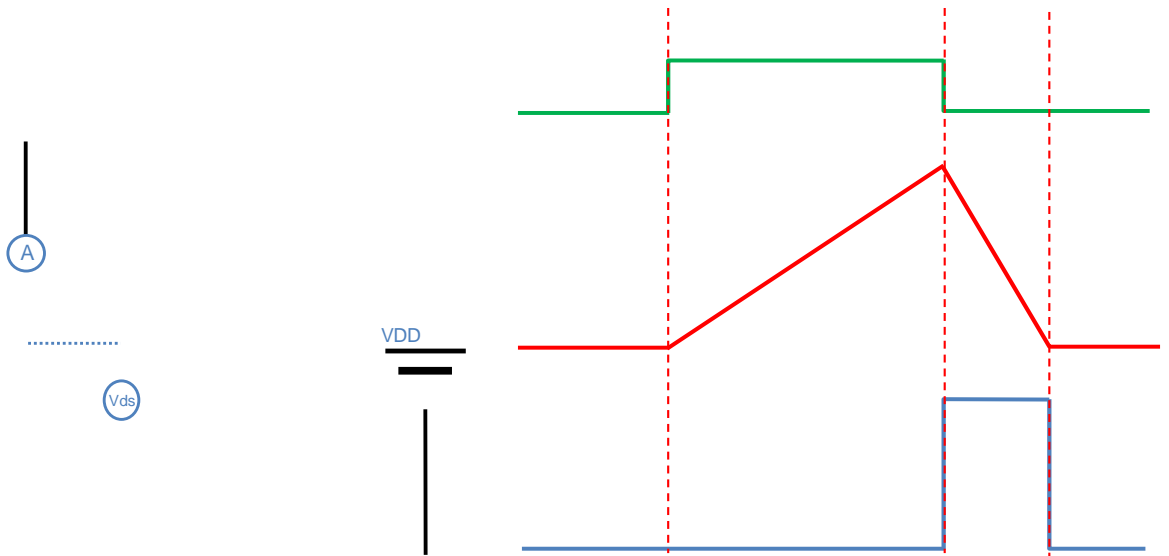


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

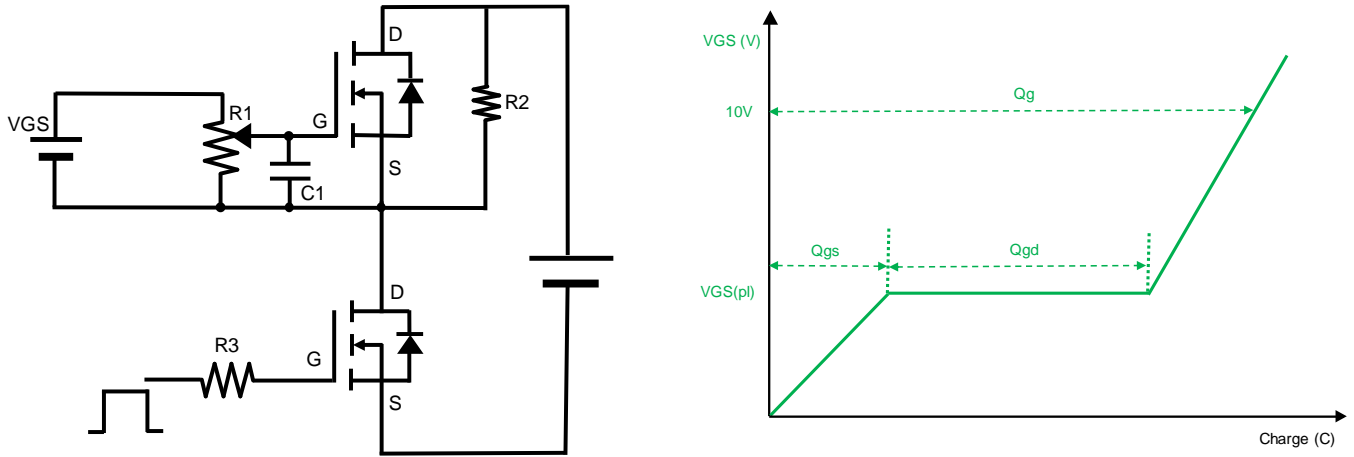


Figure B. Gate Charge Test Circuit & Waveform

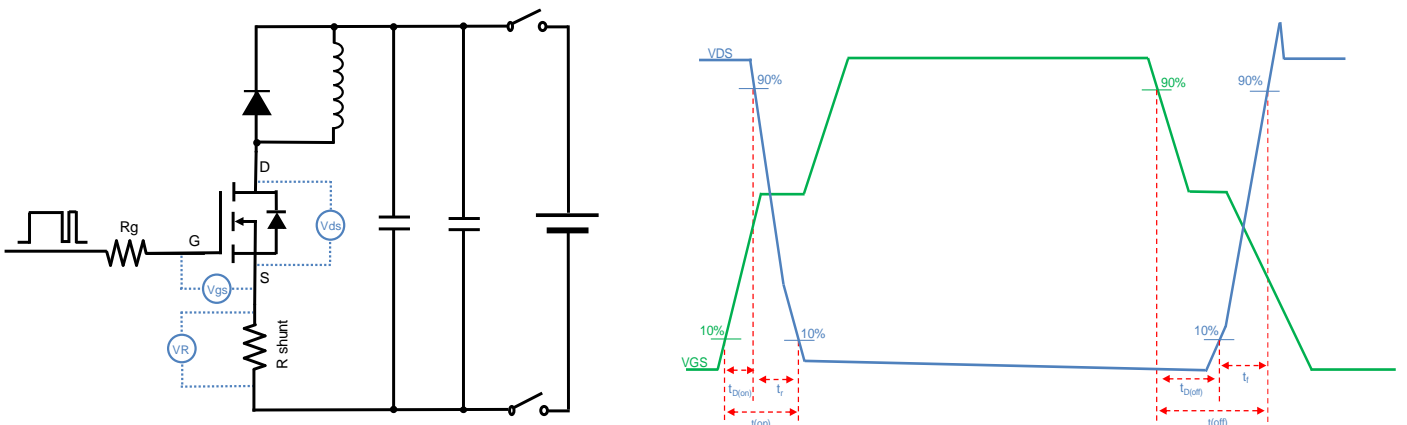


Figure C. Resistive Switching Test Circuit & Waveform

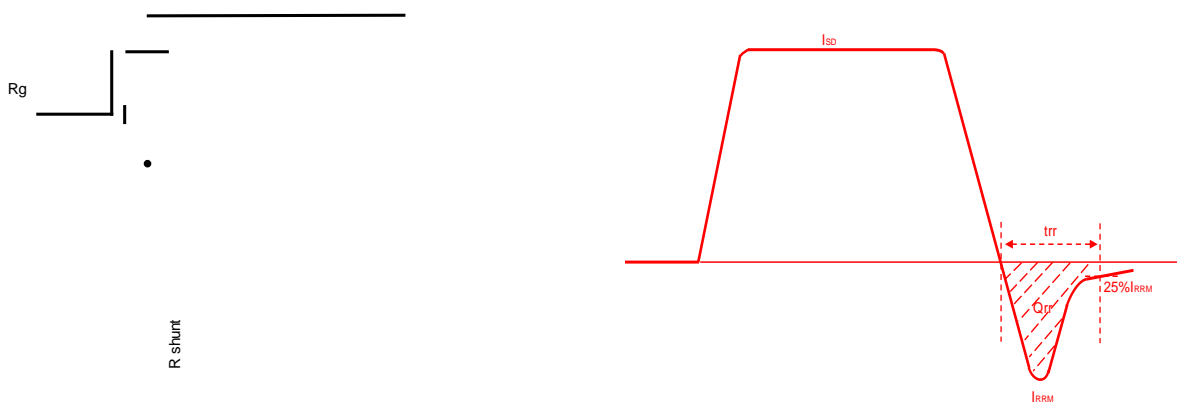
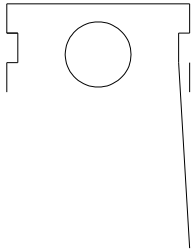


Figure D. Diode Recovery Test Circuit & Waveform



**TO-220AB-D Package information**



NOTE:  
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.  
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.



## YJP180G04C

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