YJB150N06BQ

N-Channel Enhancement Mode Field Effect Transistor

Product Summary

- V_{DS} 60V
- I_D 150A
- $R_{DS(ON)}$(at V_{GS}= 10V) 5.5mohm
- 100% UIS Tested
- 100% V_{DS} Tested

General Description

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Part no. with suffix “Q” means AEC-Q101 qualified

Applications

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive applications

Pulsed Drain Current [A]		
Total Power Dissipation	T_C=25	
	T_C=100	
Single Pulse Avalanche Energy		
Thermal Resistance Junction-to-Case [B]		
Junction and Storage Temperature Range		

■ **Ordering Information** (Example)

PREFERED P/N	PACKING CODE	
YJB150N06BQ	F2	Y

■ **Absolute Maximum Ratings** (T_A=25 unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	60	V

■ Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter		Symbol	Conditions	Min	Typ	Max	Units
Static Parameter							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS}= 0V, I_D=250μA	60			V
Zero Gate Voltage Drain Current	T_J=25	I_{DSS}	V_{DS}=60V,V_{GS}=0V			1	μA
	T_J=55					5	uA
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=250μA	2.0	3.0	4.0	V
Static Drain-Source On-Resistance		$R_{DS(ON)}$	V_{GS}= 10V, I_D=75A		4.6	5.5	mΩ
Diode Forward Voltage		V_{SD}	I_S=40A,V_{GS}=0V		0.8	1.2	V
Maximum Body-Diode Continuous Current		I_S				150	A
Dynamic Parameters							
Input Capacitance		C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHZ		3135		pF
Output Capacitance		C_{oss}			521		
Reverse Transfer Capacitance		C_{rss}			306		
Switching Parameters							
Total Gate Charge		Q_g	V_{GS}=10V,V_{DS}=30V,I_D=55A		77		nC
Gate-Source Charge		Q_{gs}			18		
Gate-Drain Charge		Q_{gd}			30		
Reverse Recovery Charge		Q_{rr}	I_F=55A, di/dt=100A/us		31		
Reverse Recovery Time		t_{rr}			32		ns
Turn-on Delay Time		$t_{D(on)}$	V_{GS}=10V,V_{DD}=30V, R_{GEN}=3Ω		15		
Turn-on Rise Time		t_r			89		
Turn-off Delay Time		$t_{D(off)}$			36		
Turn-off fall Time		t_f			91		

A. Pulse Test: Pulse Width 300us,Duty cycle 2%.

B. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

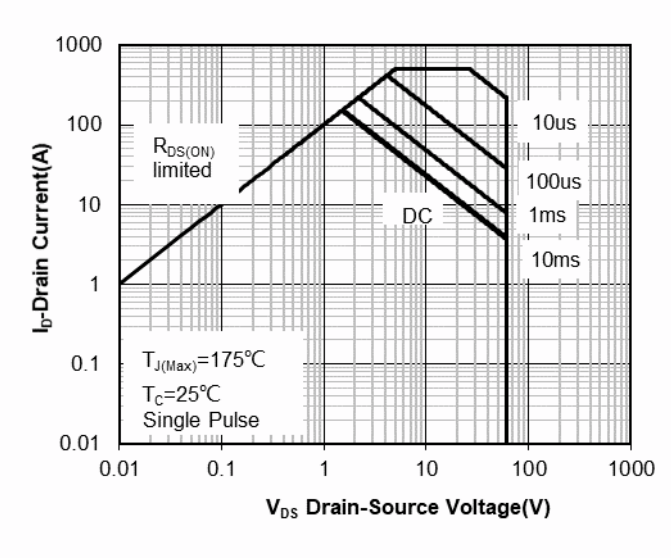


Figure 7. Safe Operation Area

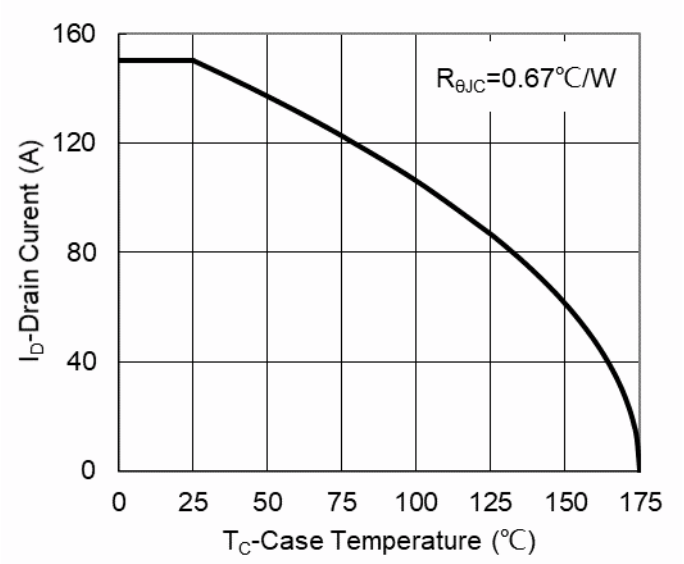


Figure 8. Maximum Continuous Drain Current vs Case Temperature

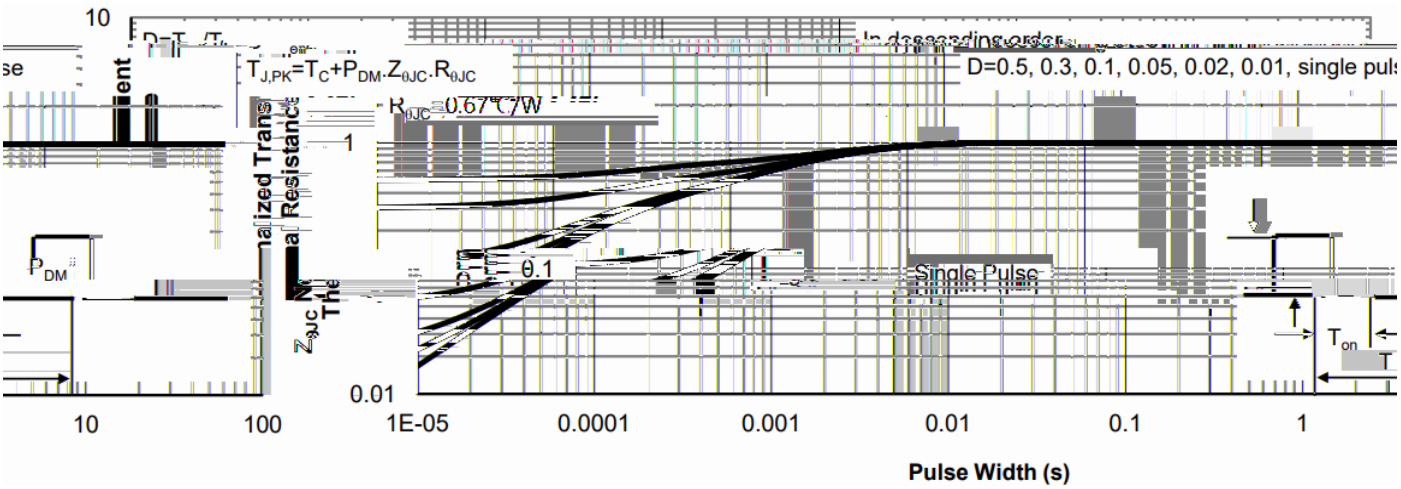
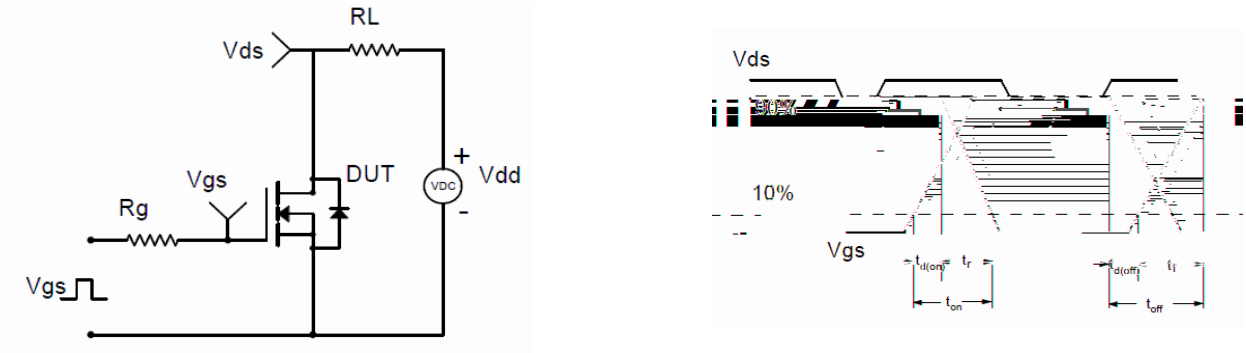
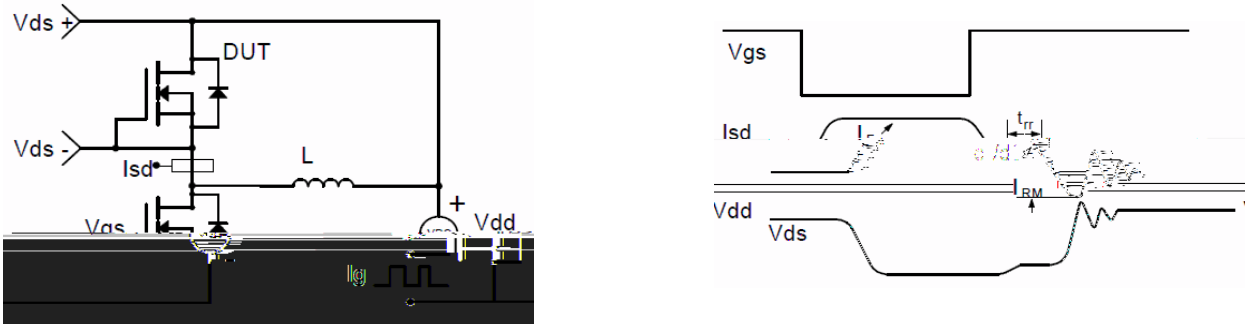


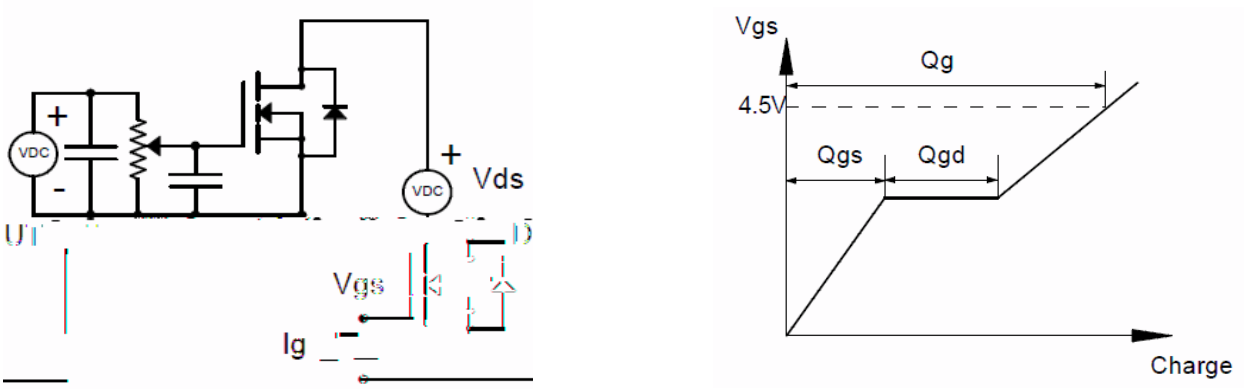
Figure 9. Normalized Maximum Transient Thermal Impedance



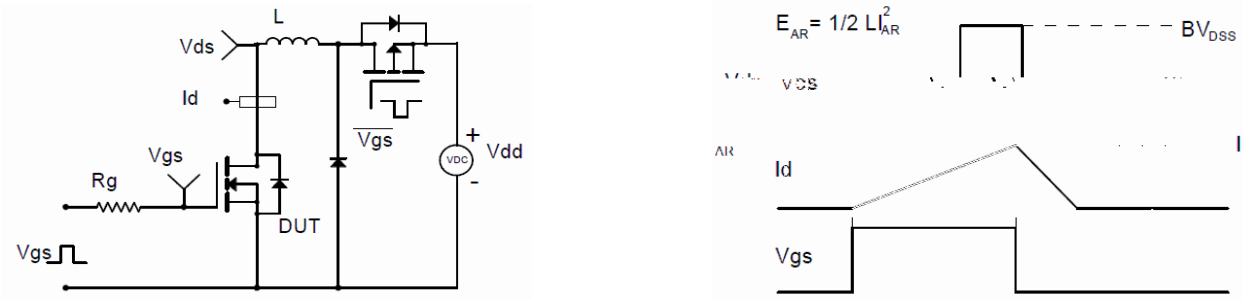
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

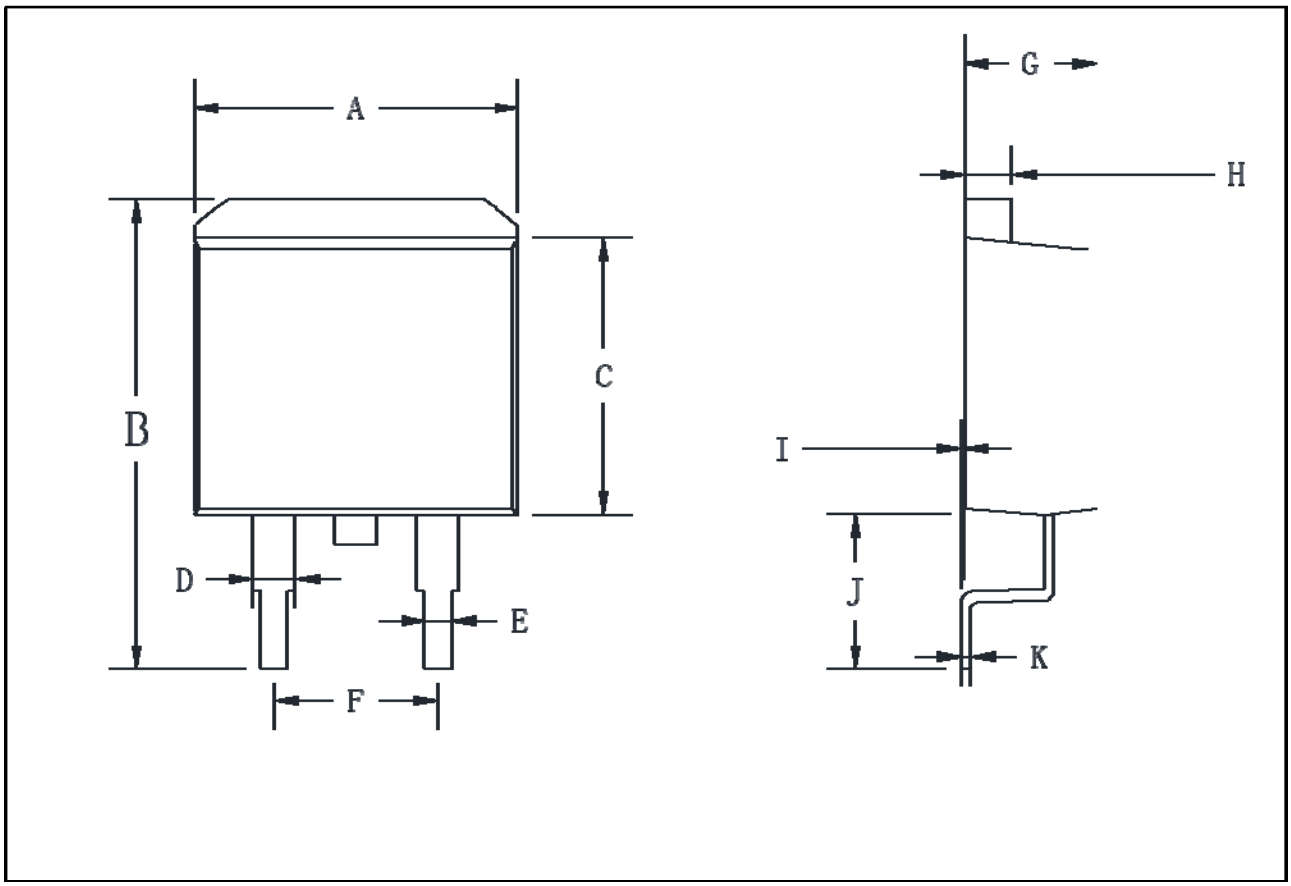


Gate Charge Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

■ TO-263 Package information



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