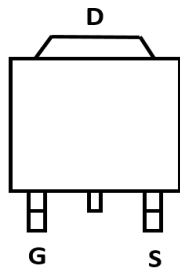
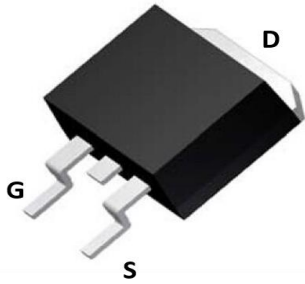
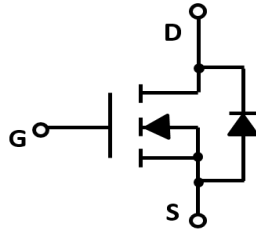


## N-Channel Enhancement Mode Field Effect Transistor



**TO-263**



### Product Summary

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

### General Description

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low  $R_{DS(ON)}$

### Applications

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

### ■ 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		$V_{GS}$	$\pm 20$	V
Drain Current	$T_C=25^\circ\text{C}$	$I_D$	150	A
	$T_C=100^\circ\text{C}$		105	
Pulsed Drain Current <sup>A</sup>		$I_{DM}$	500	A
Total Power Dissipation	$T_C=25^\circ\text{C}$	$P_D$	187	W
	$T_C=100^\circ\text{C}$		94	
Single Pulse Avalanche Energy		$E_{AS}$	550	mJ
Thermal Resistance Junction-to-Case <sup>B</sup>		$R_{\theta JC}$	0.8	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~+175	$^\circ\text{C}$

### ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJB150N06BQ	F1	YJB150N06BQ	1000	2000	10000	13" reel



# YJB150N06BQ

## ■ Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
					5	uA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	2	3	4	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> =75A		4.6	5.5	mΩ
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =40A, V <sub>GS</sub> =0V		0.8	1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				150	A
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1MHZ		3800		pF
Output Capacitance	C <sub>oss</sub>			430		
Reverse Transfer Capacitance	C <sub>rss</sub>			190		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =50A		69		nC
Gate-Source Charge	Q <sub>gs</sub>			33		
Gate-Drain Charge	Q <sub>gd</sub>			15		
Reverse Recovery Chrage	Q <sub>rr</sub>	I <sub>F</sub> =40A, di/dt=100A/us		98		
Reverse Recovery Time	t <sub>rr</sub>			53		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, I <sub>D</sub> =2A, R <sub>L</sub> =15Ω R <sub>GEN</sub> =3Ω		18		ns
Turn-on Rise Time	t <sub>r</sub>			35		
Turn-off Delay Time	t <sub>D(off)</sub>			44		
Turn-off fall Time	t <sub>f</sub>			23		

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

B. R<sub>θJA</sub> 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<sub>θJC</sub> is guaranteed by design, while R<sub>θJA</sub> is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.



■ Typical Performance Characteristics

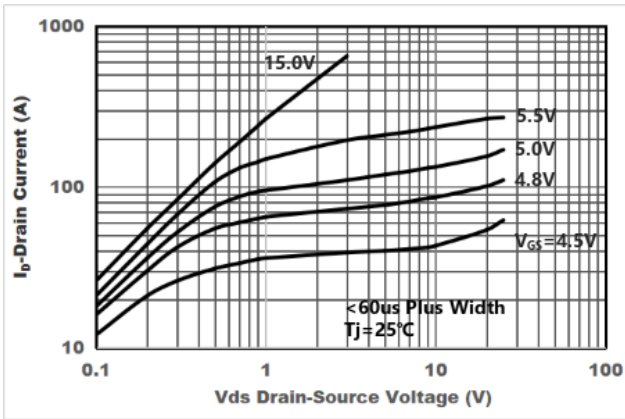


Figure1. Output Characteristics

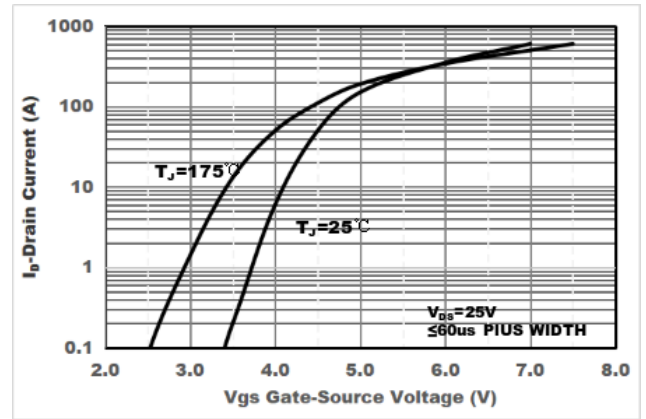


Figure2. Transfer Characteristics

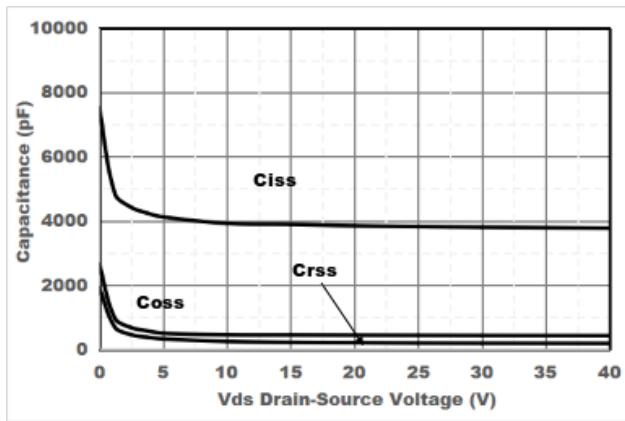


Figure3. Capacitance Characteristics

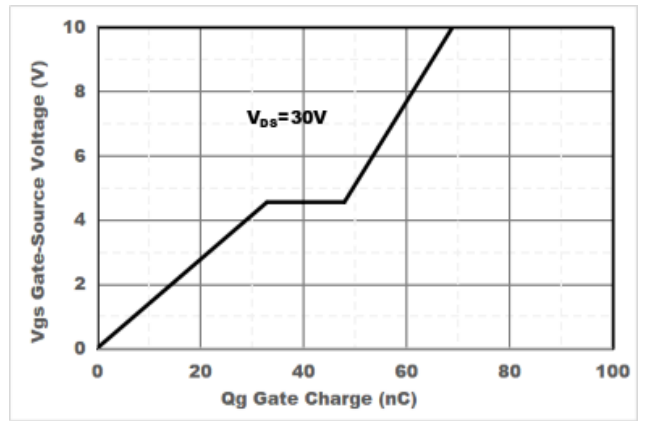


Figure4. Gate Charge

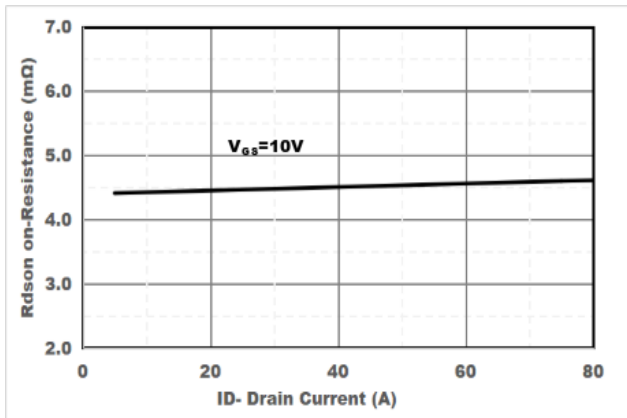


Figure5. Drain-Source on Resistance

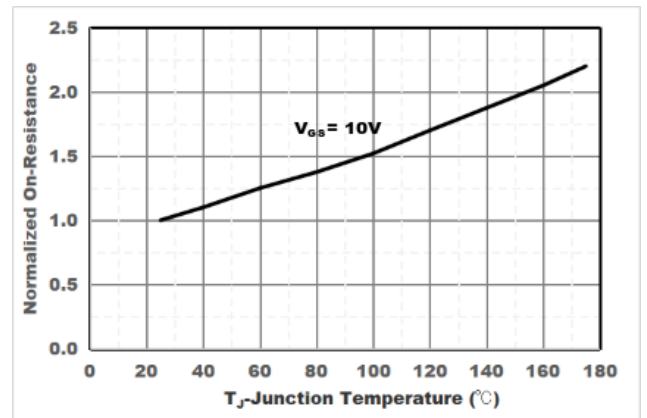


Figure6. Drain-Source on Resistance



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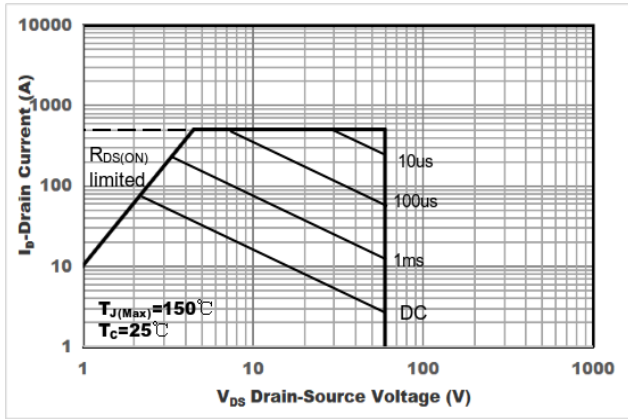


Figure7. Safe Operation Area

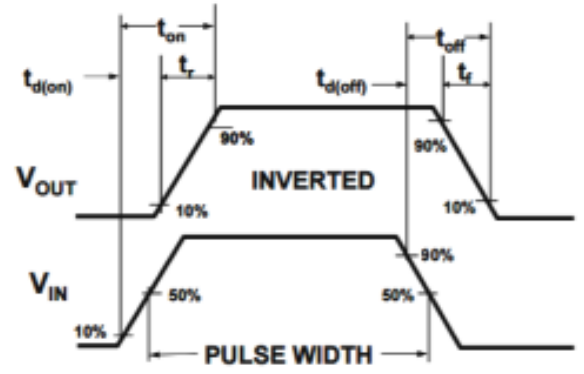
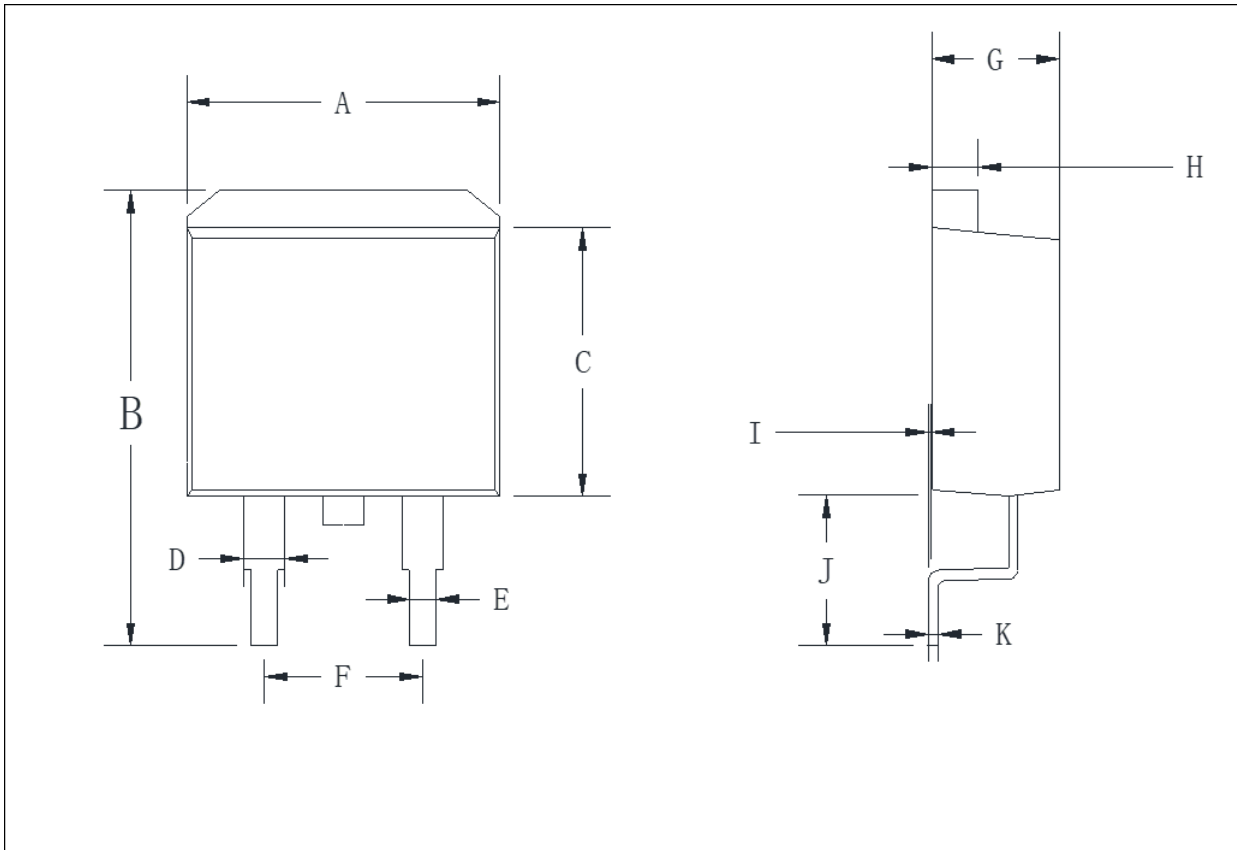


Figure8. Switching wave



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## ■ TO-263 Package information



A	B	C	D	E	F
$10.15 \pm 0.05$	$15.0 \pm 0.1$	$8.7 \pm 0.05$	$1.28 \pm 0.03$	$0.82 \pm 0.03$	$5.06 \pm 0.03$
G	H	I	J	K	L
$4.58 \pm 0.05$	$1.27 \pm 0.03$	0~0.2	$5.0 \pm 0.10$	$0.38 \pm 0.03$	$1.85 \pm 0.05$
M					
$110 \pm 5^\circ$					



## YJB150N06BQ

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