



# YJP45G10B

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## N-Channel Enhancement Mode Field Effect Transistor

### Product Summary

$V_{DS}$	100V
$I_D$	45A
$R_{DS(ON)}$ ( at $V_{GS}=10V$ )	17 mohm
100% EAS Tested	
100% $V_{DS}$ Tested	

### General Description

Low  $R_{DS(on)}$  & FOM  
Extremely low switching loss  
Excellent stability and uniformity  
Fast switching and soft recovery  
Epoxy Meets UL 94 V-0 Flammability Rating  
Halogen Free

### Applications

Power switching application-US  
Hard switching-FU7PLC



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## Electrical Characteristics (T<sub>j</sub>=25 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	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μA
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	2.8	4	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> =20A		14	17	m
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =20A, V <sub>GS</sub> =0V			1.3	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				45	A
Gate resistance	R <sub>G</sub>	f= 1 MHz, Open drain		1.2		
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHZ		1135		pF
Output Capacitance	C <sub>oss</sub>			399		
Reverse Transfer Capacitance	C <sub>rss</sub>			18		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, I <sub>D</sub> =25A		16		nC
Gate-Source Charge	Q <sub>gs</sub>			5.6		
Gate-Drain Charge	Q <sub>gd</sub>			2.4		
Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/us		42		ns
Reverse Recovery Time	t <sub>rr</sub>			39.8		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =50V, I <sub>D</sub> =25A R <sub>GEN</sub> =2.2		39.2		ns
Turn-on Rise Time	t <sub>r</sub>			11		
Turn-off Delay Time	t <sub>D(off)</sub>			53.2		
Turn-off fall Time	t <sub>f</sub>			15.8		

- A. Repetitive rating; pulse width limited by max. junction temperature.  
 B. V<sub>DD</sub>=50V, R<sub>G</sub>=25 , L=0.5mH, I<sub>AS</sub>=17.5A,.  
 C. Pd is based on max. junction temperature, using junction-case thermal resistance.  
 D. The value of R<sub>qJA</sub> is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C. The Power dissipation PDSM is based on R<sub>qJA</sub> t<sub>10s</sub> and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.



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## Typical Performance Characteristics

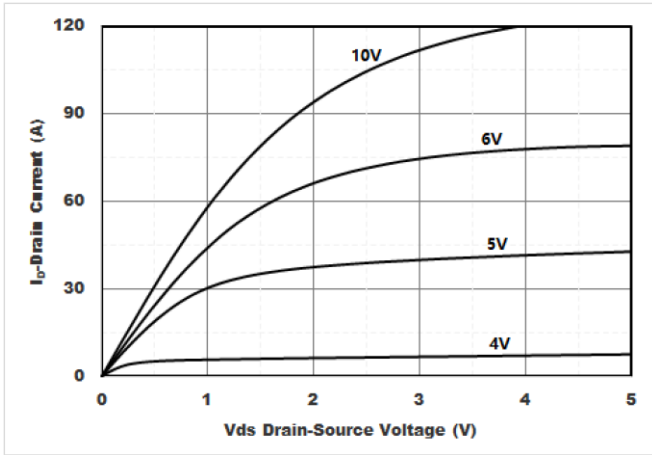


Figure1. Output Characteristics

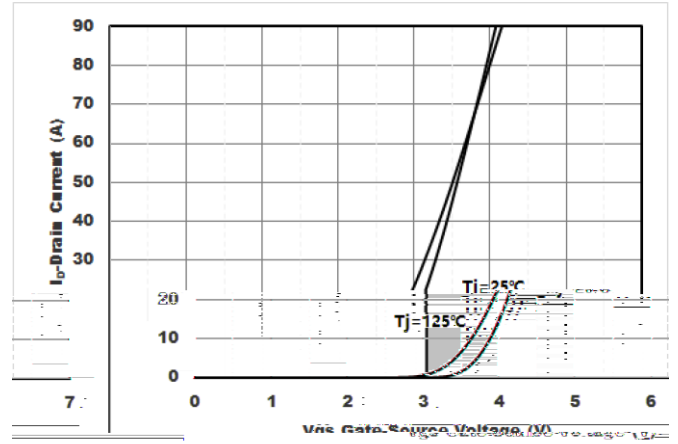


Figure2. Transfer Characteristics

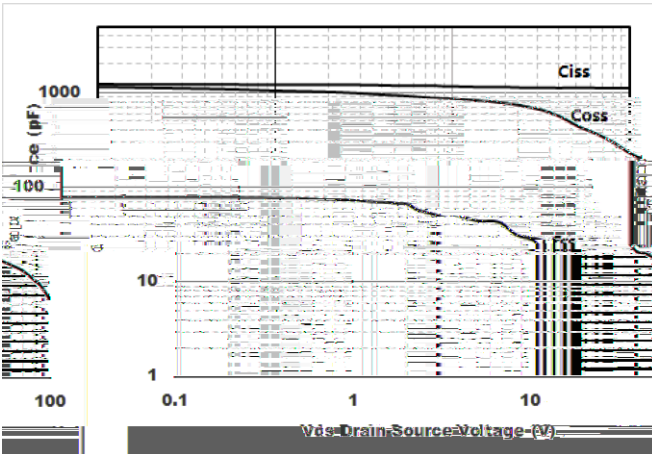


Figure3. Capacitance Characteristics

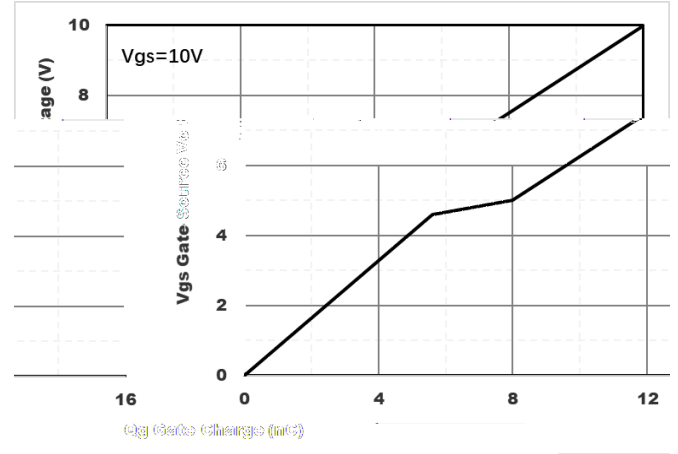


Figure4. Gate Charge

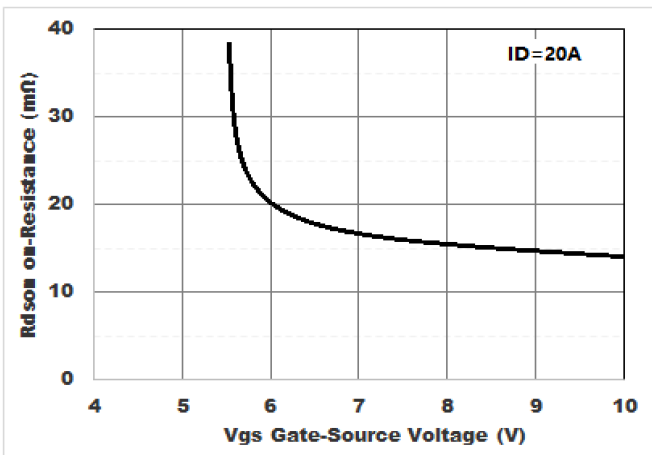


Figure5. : On-Resistance vs. Drain Current and Gate Voltage

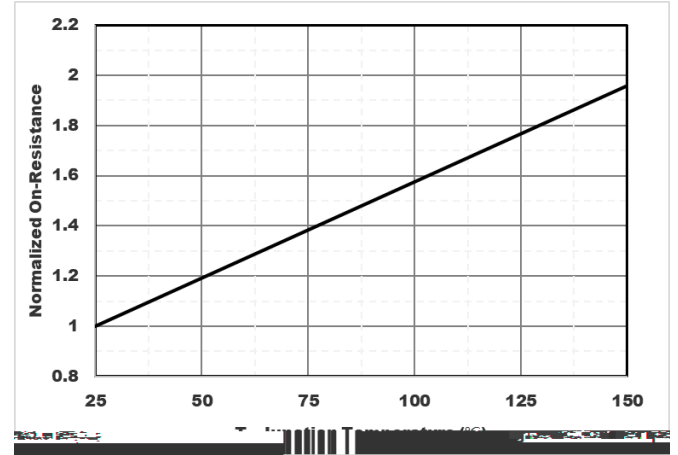


Figure6. Normalized On-Resistance



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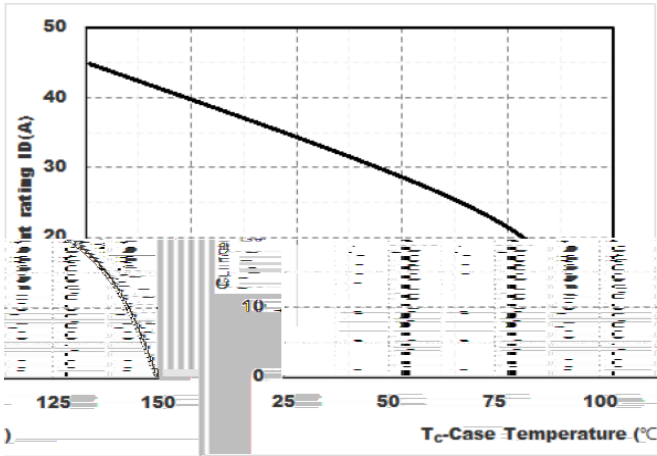


Figure7. Drain current

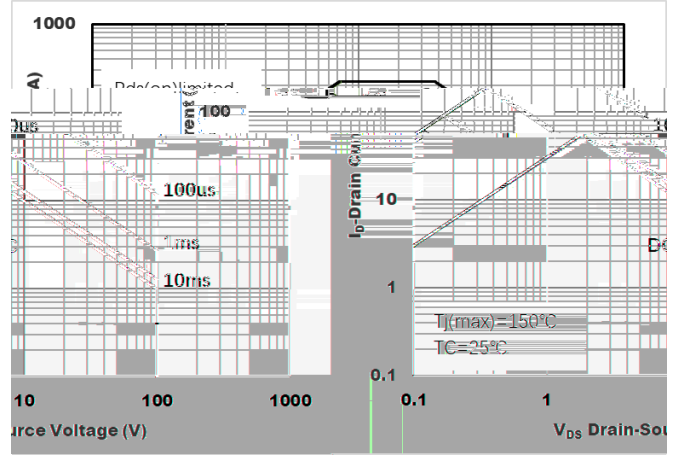


Figure8.Safe Operation Area

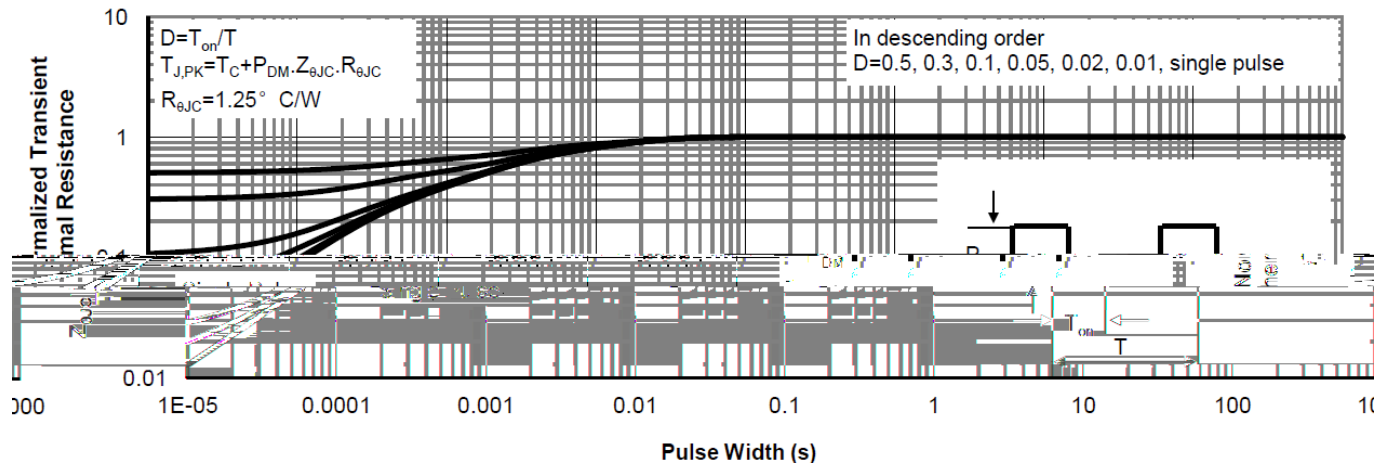
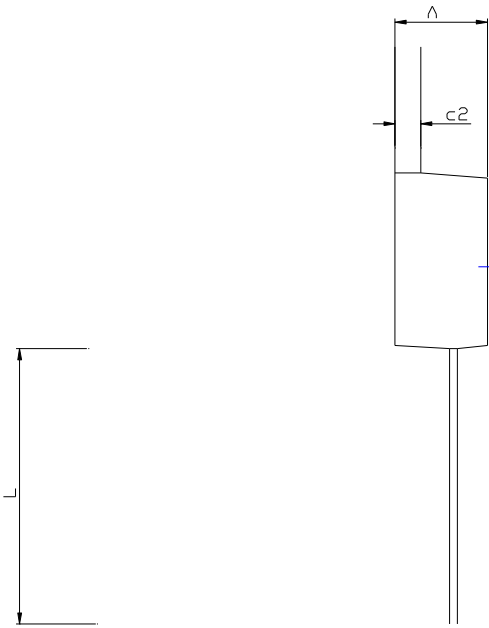


Figure9.Normalized Maximum Transient thermal impedance



TO-220AB-C Package information



SIDE VIEW

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



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## 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 list(/s906 BDC q G(r o)-5(th4 Tm0 90 G[o]-3(6.94 06 BDCe)9(s)-6(e)-3(n)t( )-68(EI)-3(n)b4 Tm0 g02.94 Tm0 g0 G[ ])TJETQq0.0