

YJD80G06C

Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	60V
I_D	80A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	7.5 mohm
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	9.5 mohm
100% EAS Tested	
100% V_{DS} Tested	

General Description

Split Gate Trench 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
 Industrial and Motor Drive application

$T_A=25$ unless otherwise noted)

	Symbol	Limit	Unit
	V_{DS}	60	V
	V_{GS}	20	V
	I_D	80	A
		50	
	I_{DM}	240	A
	EAS	150	mJ
	P_D	78	W
		31	
	T_J, T_{STG}	-55 +150	

	Symbol	Typ	Max	Units
t 10S	R	15	20	W



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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 =250	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	T _J =25		1	
			T _J =55		5	
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	1.2	1.7	2.5	V
Static Drain-Source On-Resistance	R _{Ds(ON)}	V _{GS} = 10V, I _D =20A		5.5	7.5	m
		V _{GS} = 4.5V, I _D =10A		6.9	9.5	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V		0.85	1.3	V
Maximum Body-Diode Continuous Current	I _S				80	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =35V, V _{GS} =0V, f=1MHz		2000	2800	pF
Output Capacitance	C _{oss}			390	600	
Reverse Transfer Capacitance	C _{rss}			13	25	
Gate Resistance	R _g	f=1MHz, Open drain		1.6	2.5	
Switching Parameters						
Total Gate Charge	Q _g (10V)	V _{DS} =30V, I _D =20A		34	50	nC
Total Gate Charge	Q _g (4.5V)			15.8	25	
Gate-Source Charge	Q _{gs}			7.8	15	
Gate-Drain Charge	Q _{gd}			5.2	10	
Reverse Recovery Charge	Q _{rr}	I _F =20A, di/dt=200A/us		36		
Reverse Recovery Time	t _{rr}			27		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =30V, I _D =12A R _{GEN} =3		10		ns
Turn-on Rise Time	t _r			36		
Turn-off Delay Time	t _{D(off)}			30		
Turn-off fall Time	t _f			57		

A. Repetitive rating; pulse width limited by max. junction temperature.

B. V_{DD}=50V, R_G 0.5mH, I_{AS}=24.5A,-

C. Pd is based on max. junction temperature, using junction-case thermal resistance.

D. The value of R is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25 C. The Power dissipation P_{DSM} is based on R depends on the user's specific board design. C. The value in any given application



Typical Performance Characteristics

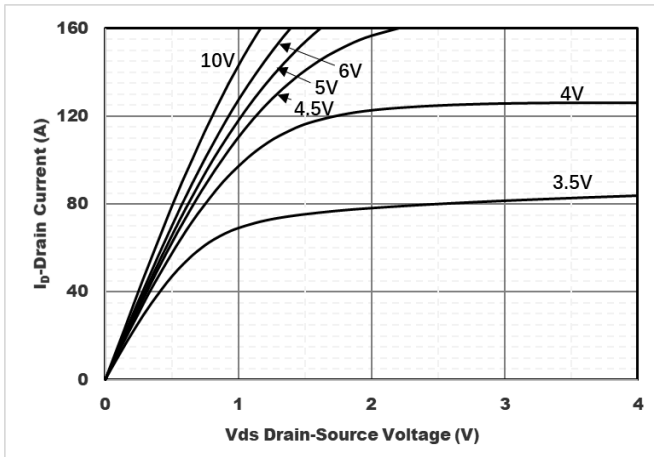


Figure1. Output Characteristics

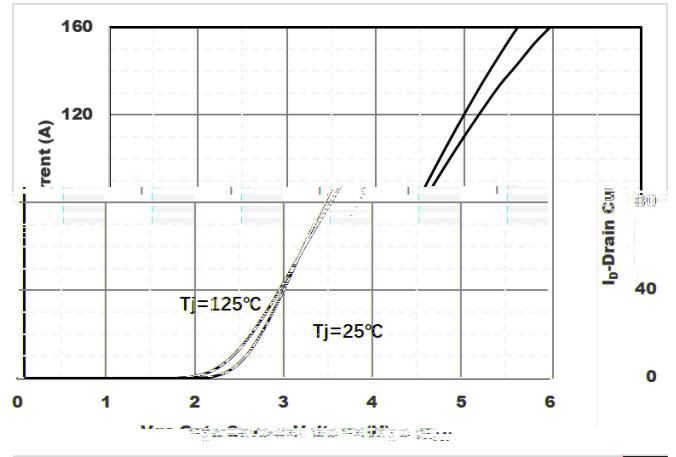


Figure2. Transfer Characteristics

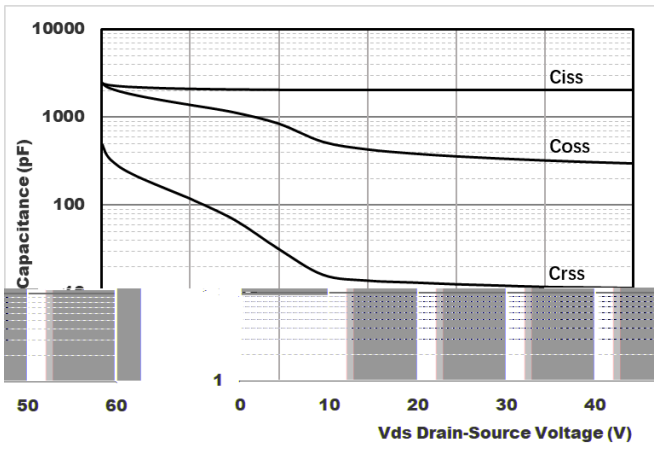


Figure3. Capacitance Characteristics

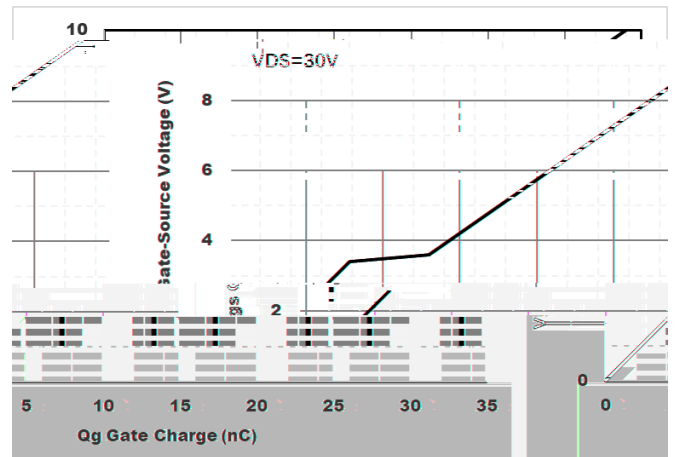


Figure4. Gate Charge

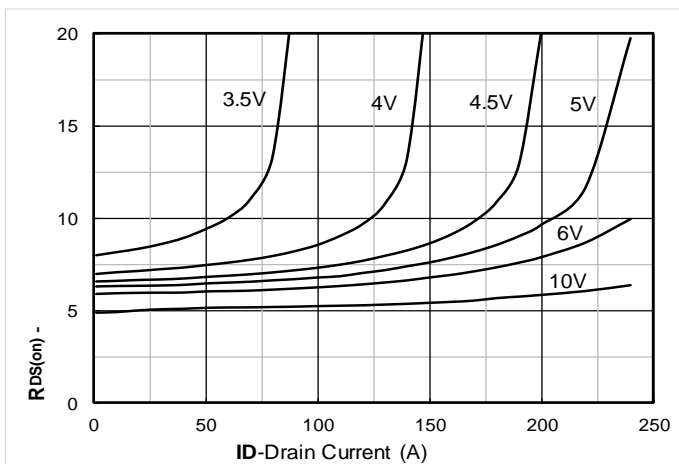


Figure5. Drain-Source on Resistance

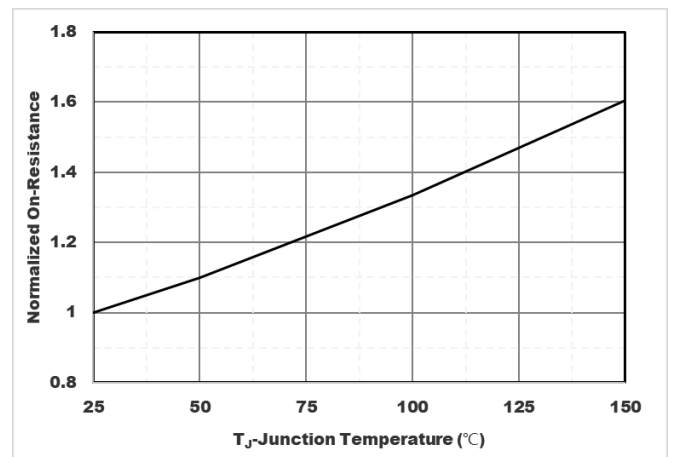


Figure6. Normalized On-Resistance



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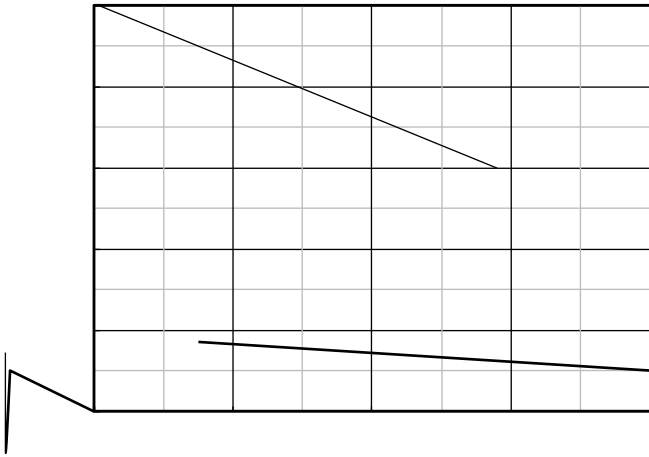


Figure7. Drain current

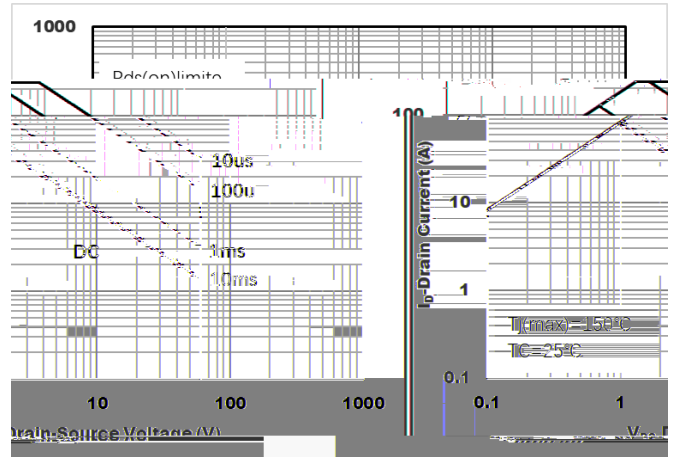


Figure8. Safe Operation Area

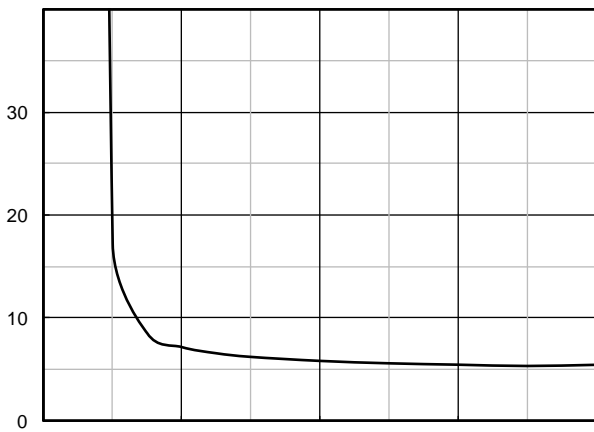


Figure 9. On-Resistance vs Gate to Source Voltage

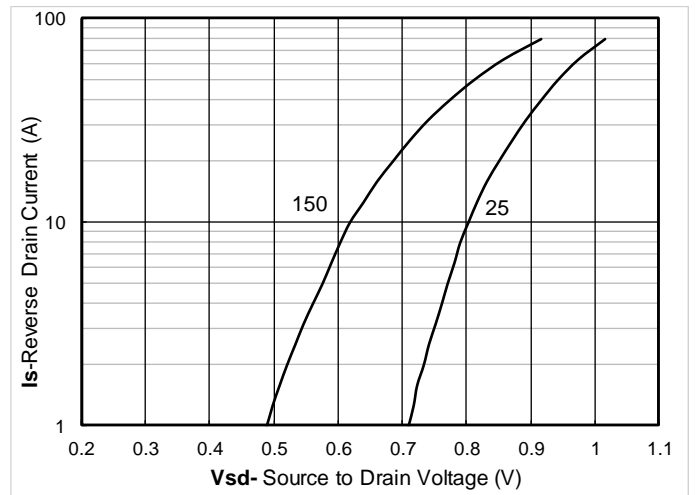


Figure 10. Forward characteristics of reverse diode

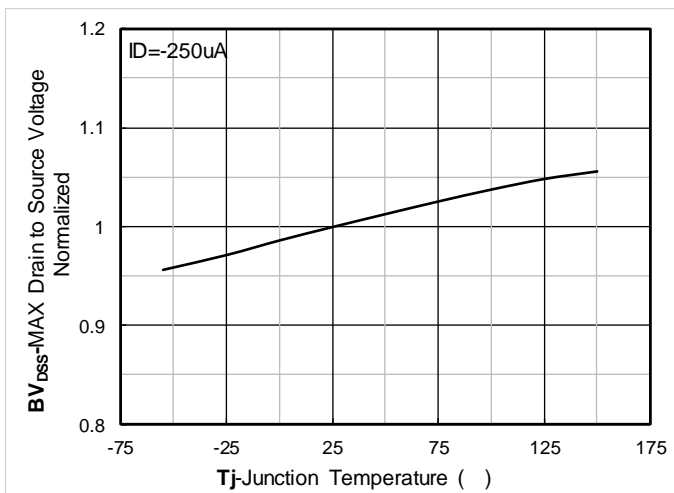


Figure11. Normalized breakdown voltage

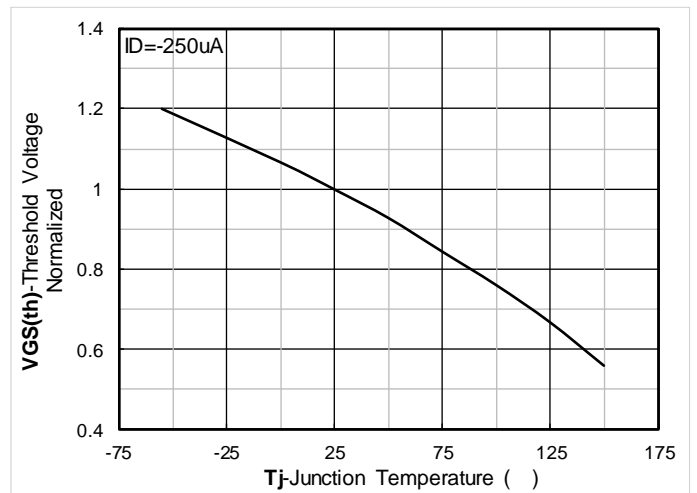


Figure 12. Normalized Threshold voltage



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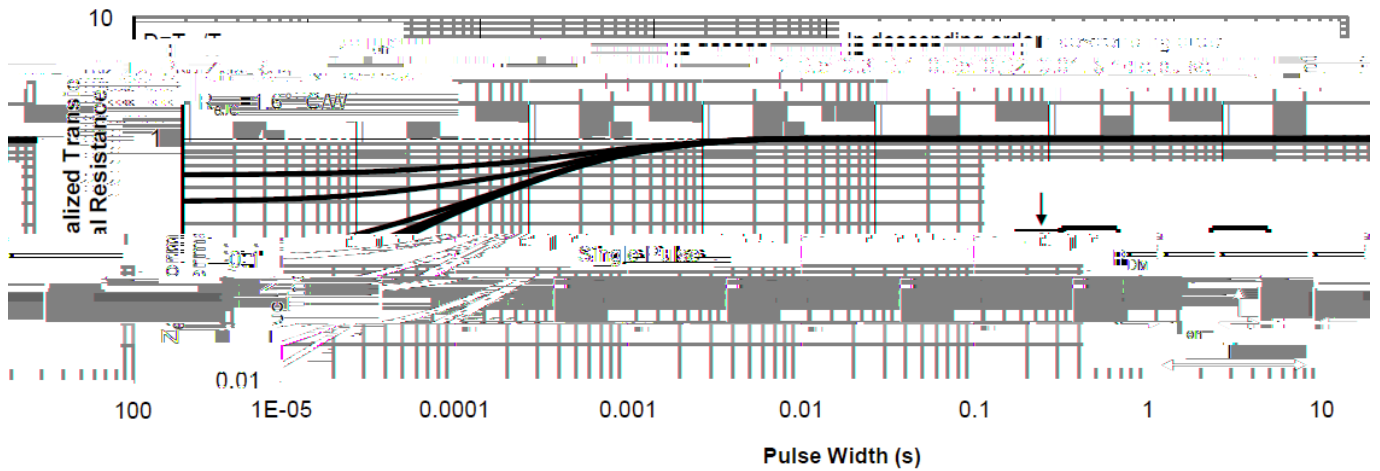
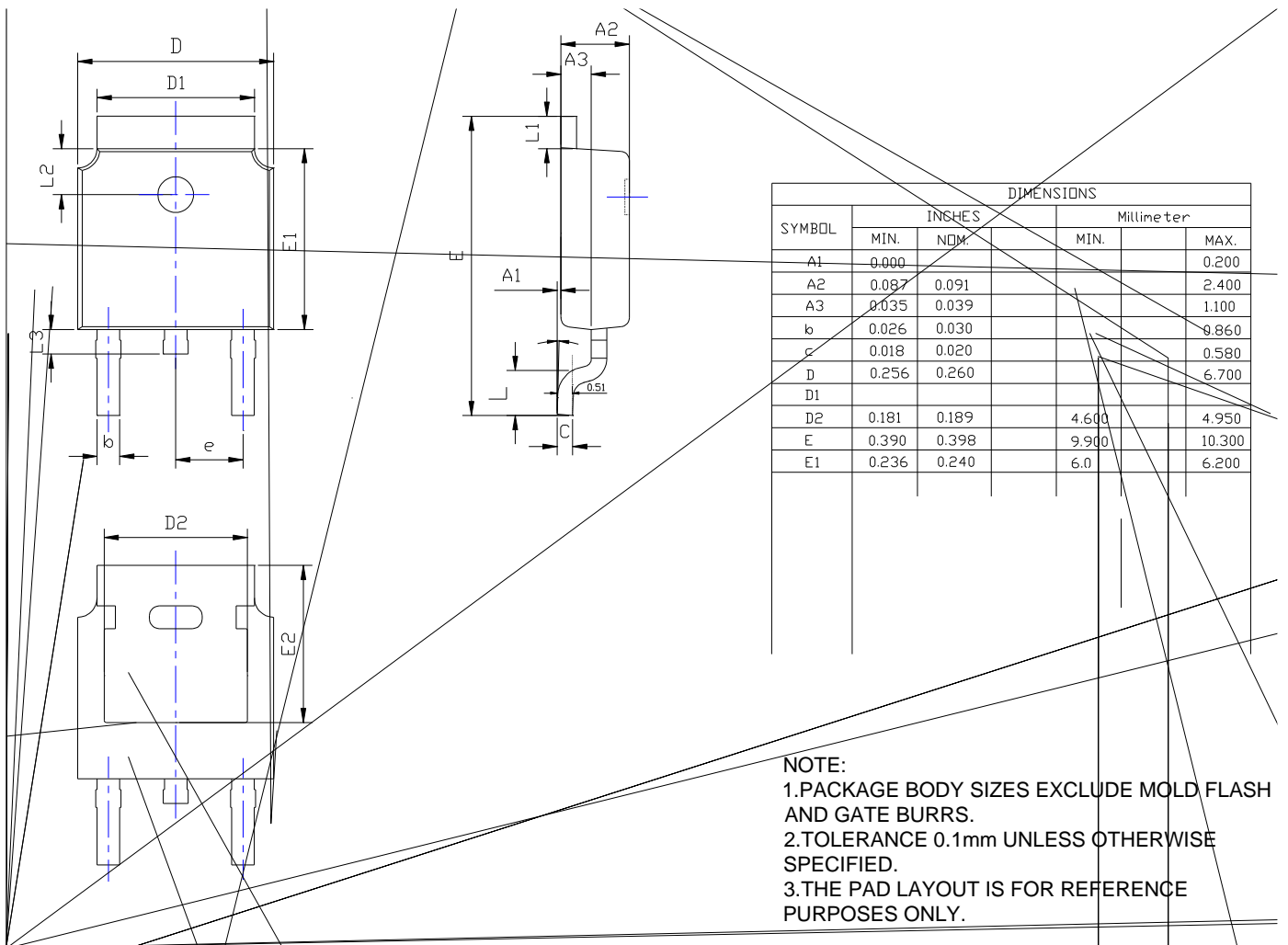


Figure13. Normalized Maximum Transient Thermal Impedance

TO-252-B Package information





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