GaN HEMT P1H06150BD

650V GaN Enhancement Mode Power Transistor

Features

- Ultra Fast Switching
- No Reverse-Recovery Charge
- Capable of Reverse Conduction
- Low Gate Charge, Low Output Charge

Standards Benefits

- Improve System Efficiency
- Increase Power Density
- Enable Higher Operating Frequency
- System Cost Reduction Savings

Applications

- Consumer SMPS
- High Density Chargers Based on the Half-Bridge Topology
- Totem Pole PFC, High Frequency LLC and Flyback

Order Information

Part Number	Die Size
P1H06150BD	Please contact your sales representative to get the detailed information about die layout and dimensions.

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1. Maximum Ratings

At T_J= 25℃, unless specified otherwise

Parameter	Symbol	Value	Unit	Test Conditions
Drain - Source Voltage	V_{DSmax}	650	V	V_{GS}= 0V
Gate - Source Voltage (Dynamic)	V_{GSmax}	-20 / +10	V	AC (f>1 Hz)
Gate - Source Voltage (Static)	V_{GSop}	-8 / +6	V	Static
Continuous Drain Current	I_D	12	A	V_{GS}= 6V T_C= 25℃
		9		V_{GS}= 6V T_C= 100℃
Operating Junction Temperature	T_J	-55 To +150	℃	
Storage Temperature	T_{stg}	-55 To +150	℃	

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2. Electrical Characteristics

At T_J= 25℃, unless specified otherwise

Parameter	Symbol	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
Breakdown Voltage	V_{BV}	650	/	/	V	V_{GS}= 0V
Threshold Voltage	V_{TH}	/	1.3	/	V	V_{DS}= 5V I_{DS}= 1mA
On-State Resistance	$R_{DS(on)}$	/	150	/	mΩ	V_{GS}= 6V I_{DS}= 5A

Parameter	Symbol	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
Drain-Source Leakage Current	I_{DSS}	/	0.5	10	μA	V_{GS}= 0V V_{DS}= 650V
Gate-Source Leakage Current	I_{GSS}	/	7.8	27	μA	V_{GS}= 6V V_{DS}= 0V
Input Capacitance	C_{iss}	/	107	/	pF	V_{DS}= 400V V_{GS}= 0V f= 1MHz
Output Capacitance	C_{oss}	/	43.9	/	pF	
Reverse Transfer Capacitance	C_{rss}	/	0.98	/	pF	
Total Gate Charge	Q_G	/	4.9	/	nC	V_{DS}= 400V V_{GS}= 6V
Gate to Source Charge	Q_{GS}	/	0.7	/		
Gate to Drain Charge	Q_{GD}	/	2.7	/		
Output Charge	Q_{OSS}	/	31.2	/	nC	V_{DS}= 400V V_{GS}= 0V f= 1MHz
Reverse Recovery Charge	Q_{RR}	/	0	/		
Output Capacitance Stored Energy	E_{OSS}	/	8.1	/	μJ	V_{DS}= 400V V_{GS}= 0V f= 1MHz

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3. Typical Performance

At T_J= 25℃, unless specified otherwise

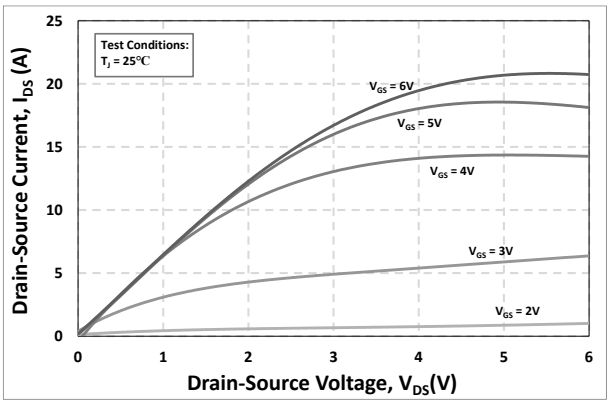

Fig.1 Output Characteristics T_J = 25℃

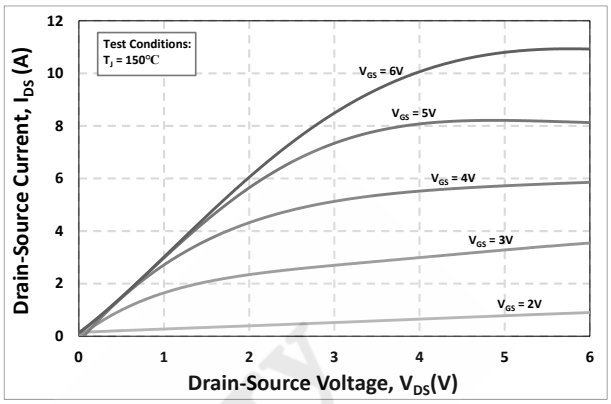

Fig.2 Output Characteristics T_J = 150℃

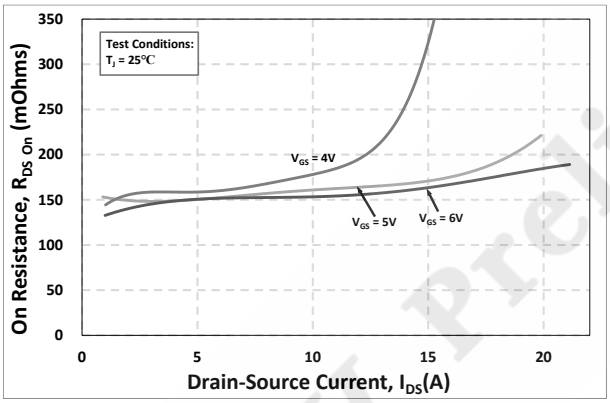

Fig.3 On-Resistance for Various Gate Voltages

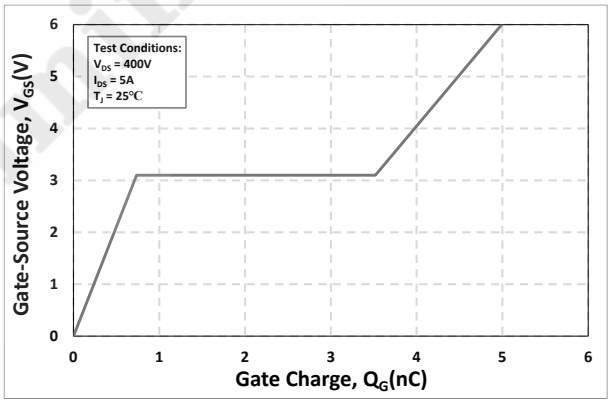

Fig.4 Gate Charge Characteristics

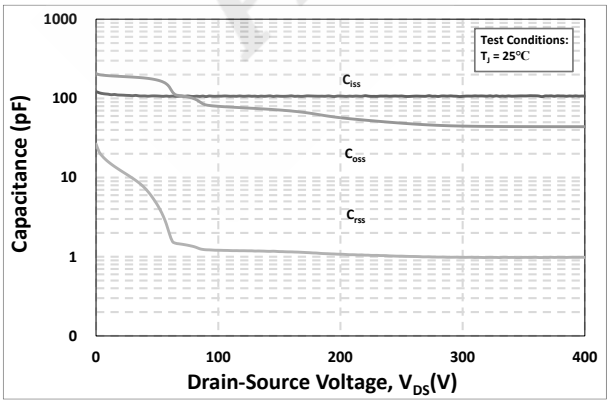

Fig.5 Capacitances vs. Drain-Source Voltage

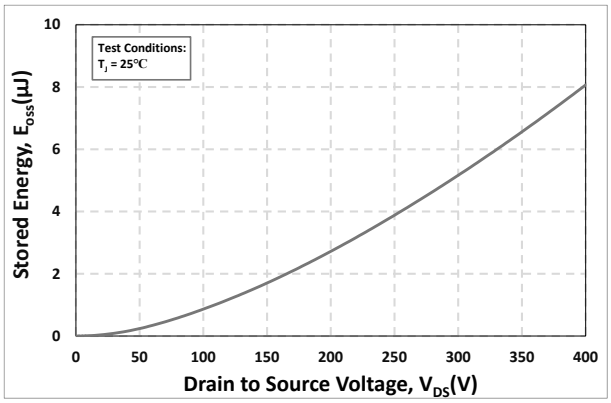

Fig.6 Output Capacitor Stored Energy

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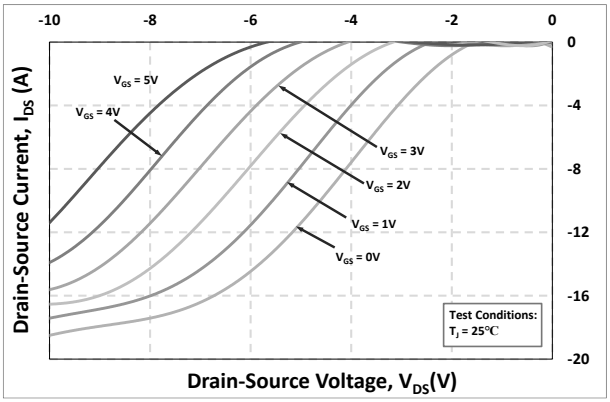

Fig.7 Reverse Conduction Characteristics

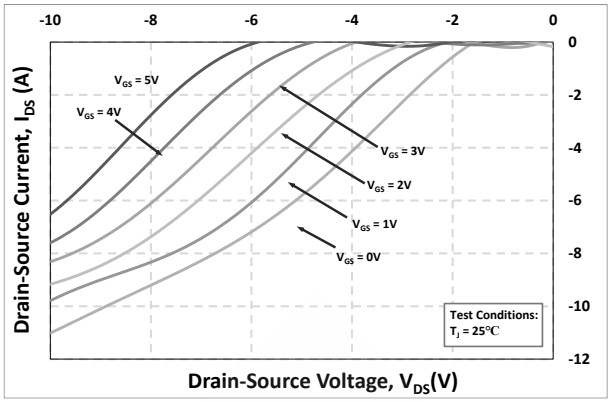

Fig.8 Reverse Conduction Characteristics

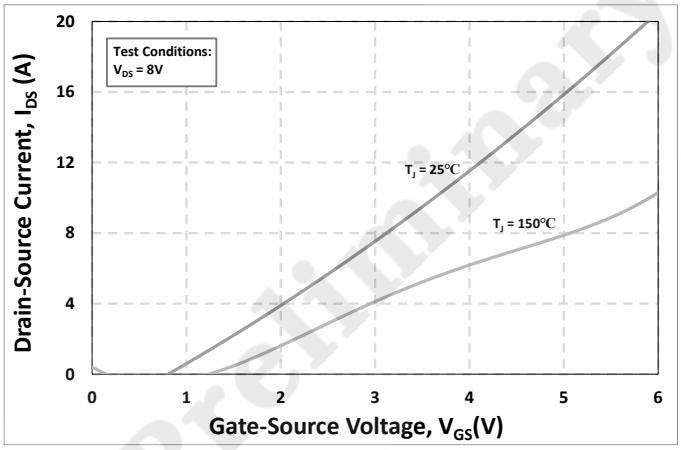

Fig.9 Transfer Characteristic for Various Junction Temperatures

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4. Chip Dimensions

Please contact your sales representative to get the detailed information about die layout and dimensions.