EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	IRFB3307Z
Overseas Part Number	IRFB3307Z
Equivalent Part Number	IRFB3307Z

80V N-SGT Enhancement Mode MOSFET

Description

The IRFB3307Z use advanced SGT MOSFET technology to provide low $R_{DS(ON)}$, low gate charge, fast switching
This device is specially designed to get better ruggedness and suitable to use in

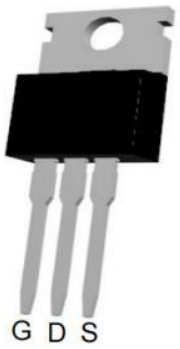
General Features

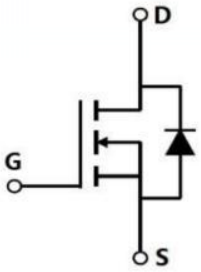
Low R_{DS} (on) & FOM
Extremely low switching loss
Excellent stability and uniformity or Invertors

Application

Consumer electronic power supply Motor control
Synchronous-rectification Isolated DC
Synchronous-rectification applications

TO-263/TO-220-3L Pin Configuration





Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain source voltage	VDS	80	V
Gate source voltage	VGS	±20	V
Continuous drain current[1)]	ID	152	A
Pulsed drain current[2)]	ID, pulse	390	A
Power dissipation[3)]	P_D	192	W
Single pulsed avalanche energy[5)]	EAS	400	mJ
Operation and storage temperature	Tstg, Tj	-55 to 150	℃
Thermal resistance, junction-case	RθJC	0.65	℃/W
Thermal resistance, junction-ambient[4)]	RθJA	62.5	℃/W

80V N-SGT Enhancement Mode MOSFET

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	80			V	V_{GS}=0 V, I_D=250 μA
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$		3.5	4.5	mΩ	V_{GS}=10 V, I_D=20 A
Gate-source leakage current	I_{GSS}			100	nA	V_{GS}=20 V
				-100		V_{GS}=-20 V
Drain-source leakage current	I_{DSS}			1	μA	V_{DS}=80 V, V_{GS}=0 V
Input capacitance	C_{iss}		8681		pF	V_{GS}=0 V, V_{DS}=50 V, f=1 MHz
Output capacitance	C_{oss}		6484		pF	
Reverse transfer capacitance	C_{rss}		8.55		pF	
Turn-on delay time	$t_{d(on)}$		28.2		ns	V_{GS}=10 V, V_{DS}=50 V, R_G=2.2 Ω, I_D=22 A
Rise time	t_r		7.5		ns	
Turn-off delay time	$t_{d(off)}$		81.9		ns	
Fall time	t_f		20.1		ns	
Total gate charge	Q_g		101.6		nC	I_D=22 A, V_{DS}=50 V, V_{GS}=10 V
Gate-source charge	Q_{gs}		20.6		nC	
Gate-drain charge	Q_{gd}		28.7		nC	
Gate plateau voltage	$V_{plateau}$		4.2		V	
Diode forward current	I_S			152	A	V_{GS}<V_{th}
Pulsed source current	I_{SP}			390		
Diode forward voltage	V_{SD}			1.3	V	I_S=20 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		82.1		ns	I_S=10 A, di/dt=100 A/μs
Reverse recovery charge	Q_{rr}		248.4		nC	
Peak reverse recovery current	I_{rrm}		4.9		A	

Note

1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 ℃.
5) V_{DD}=50 V, R_G=25 Ω, L=0.5 mH, starting T_j=25 ℃.

Electrical Characteristics Diagrams

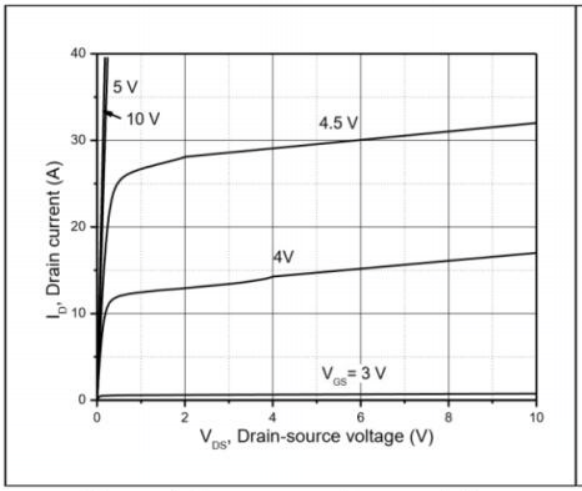


Figure 1, Typ. output characteristics

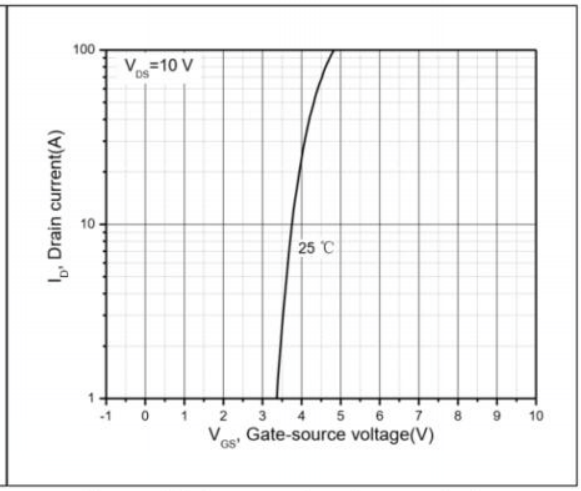


Figure 2, Typ. transfer characteristics

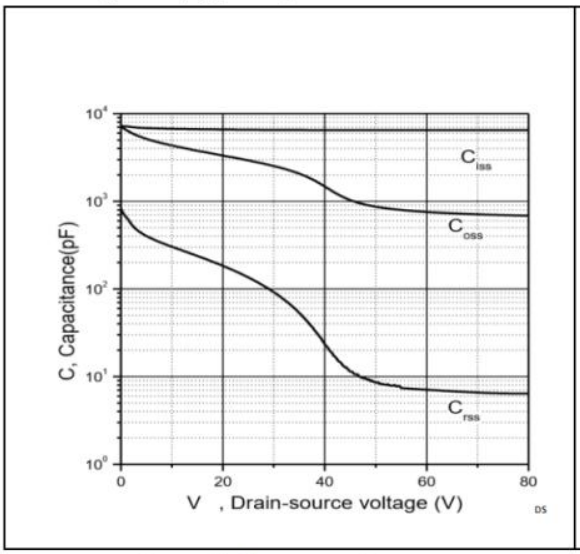


Figure 3, Typ. capacitances

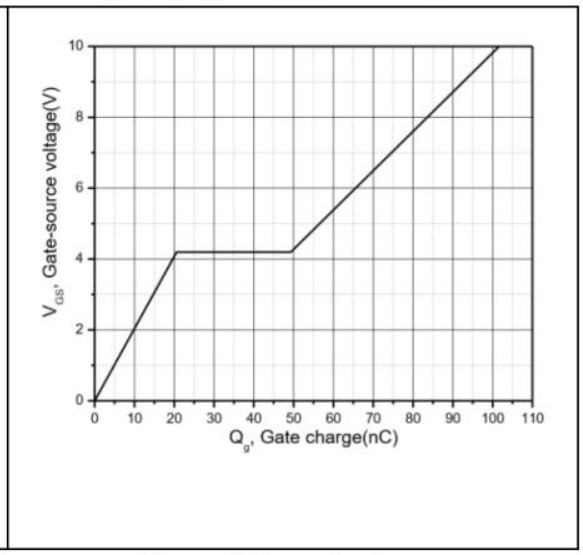


Figure 4, Typ. gate charge

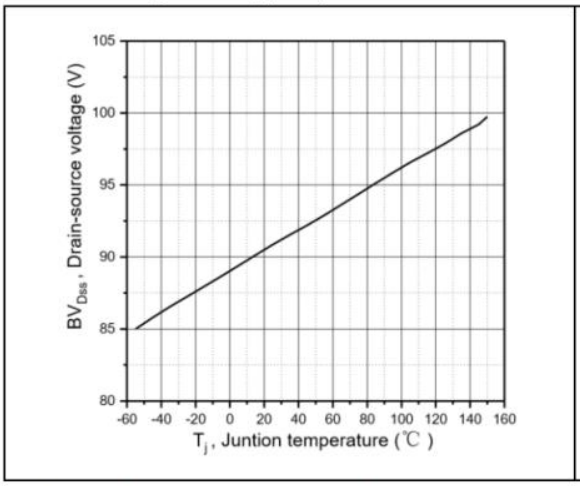


Figure 5, Drain-source breakdown voltage

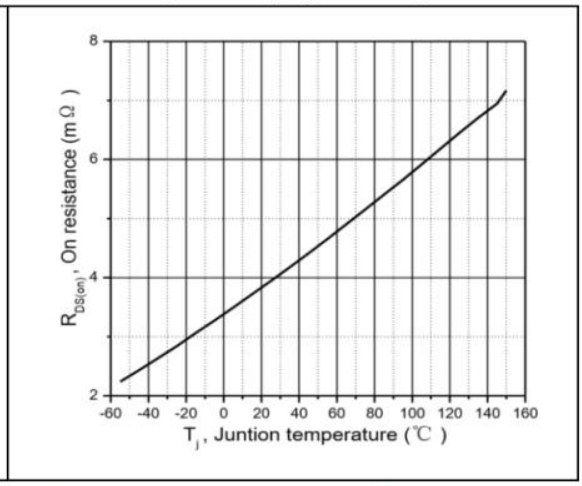


Figure 6, Drain-source on-state resistance

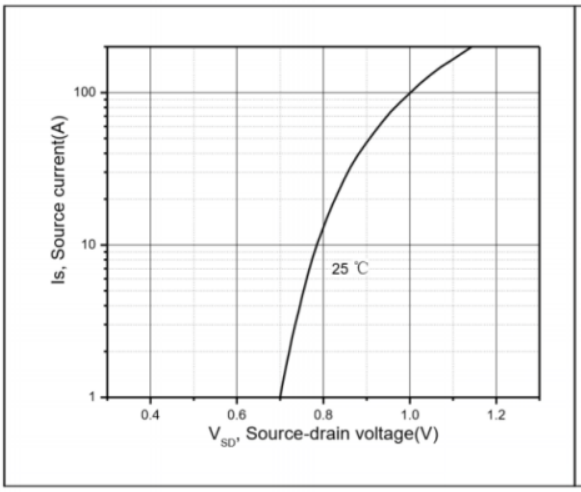


Figure 7, Forward characteristic of body diode

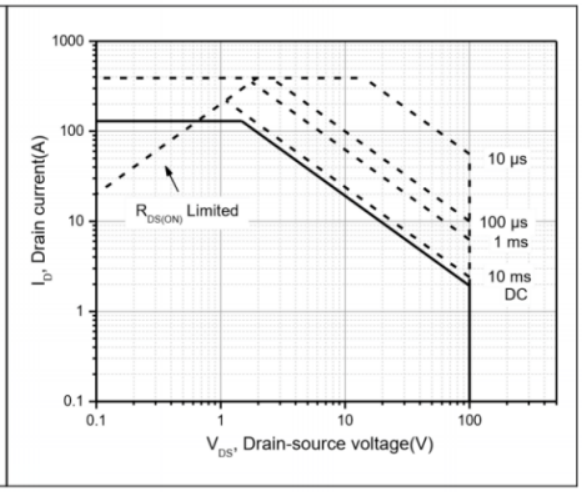


Figure 8, Safe operation area T_C=25 ℃

Test circuits and waveforms

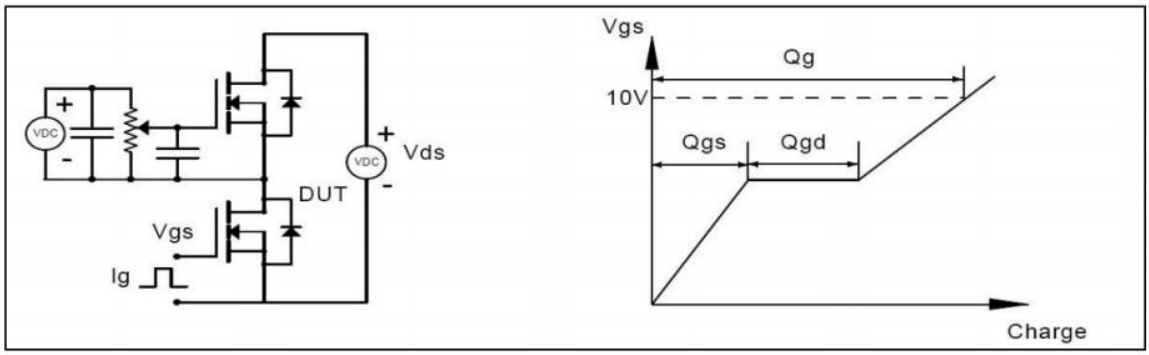


Figure 1, Gate charge test circuit & waveform

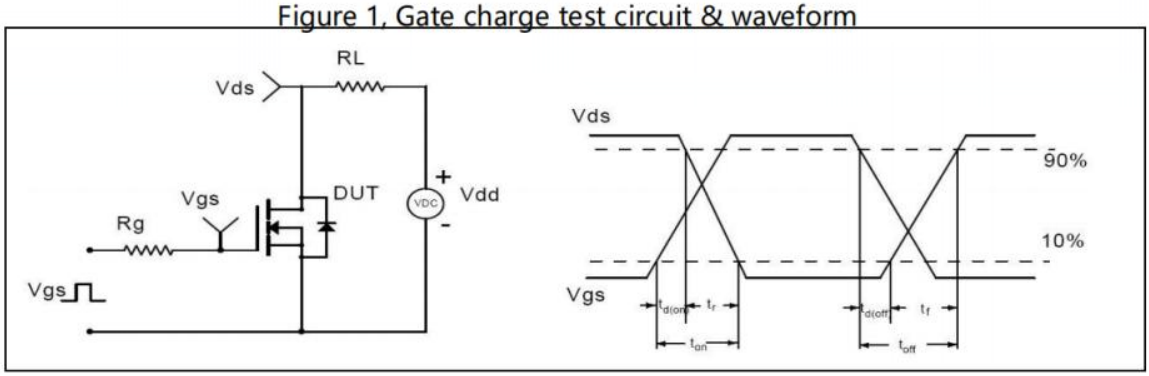


Figure 2, Switching time test circuit & waveforms

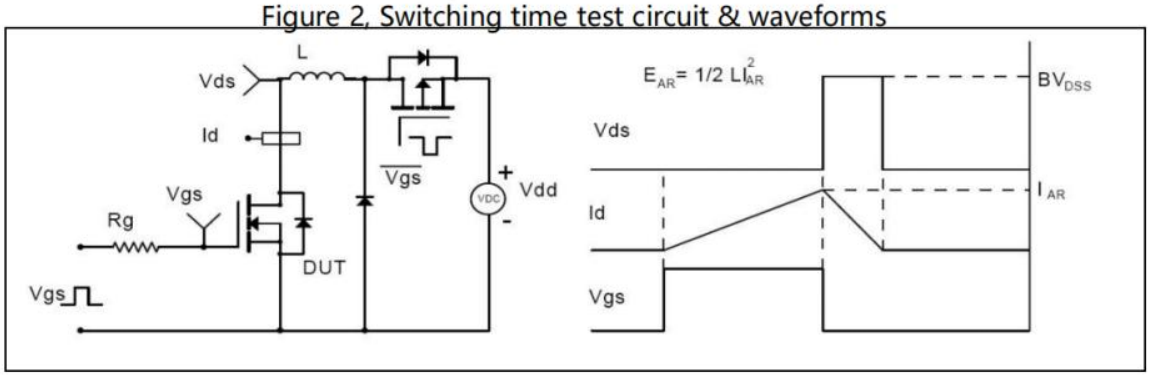


Figure 3, Unclamped inductive switching (UIS) test circuit & waveforms

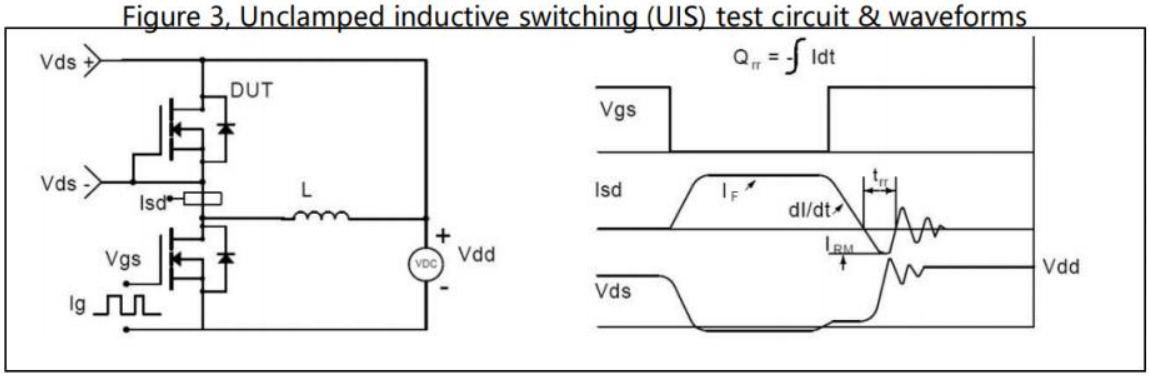
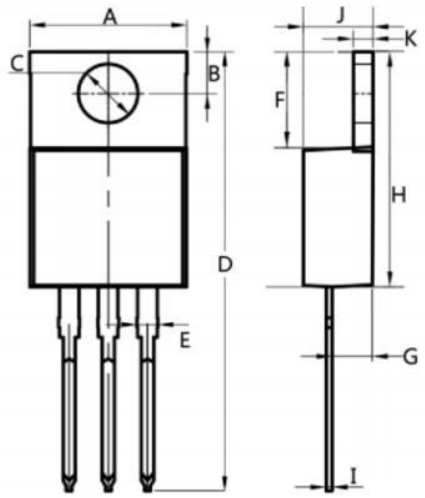


Figure 4, Diode reverse recovery test circuit & waveforms

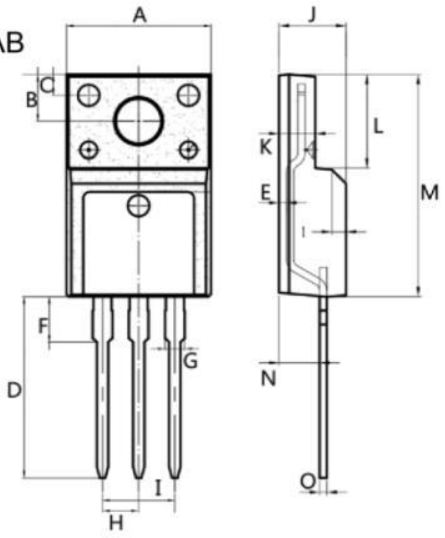
80V N-SGT Enhancement Mode MOSFET

TO-220AB



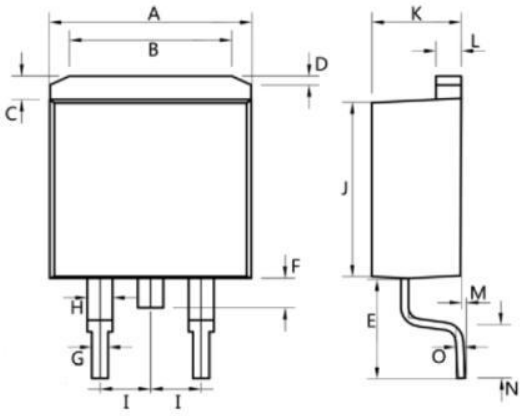
Dim.	Min.	Max.
A	10.0	10.4
B	2.5	3.0
C	3.5	4.0
D	28.0	30.0
E	1.1	1.5
F	6.2	6.6
G	2.9	3.3
H	15.0	16.0
I	0.35	0.45
J	4.3	4.7
K	1.2	1.4
All Dimensions in millimeter		

ITO-220AB



Dim.	Min.	Max.
A	9.9	10.3
B	2.9	3.5
C	1.15	1.45
D	12.75	13.25
E	0.55	0.75
F	3.1	3.5
G	1.25	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.55	4.75
K	2.4	2. 7
L	6.35	6.75
M	15.0	16.0
N	2.75	3.15
O	0.45	0.60
All Dimensions in millimeter		

TO-263



Dim.	Min.	Max.
A	10.0	10. 5
B	7.25	7.75
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.75	0.95
H	1.15	1.35
I	Typ 2.54	
J	8.4	8.6
K	4.4	4.6
L	1.25	1.45
M	0.02	0.1
N	2.4	2.8
O	0.35	0.45
All Dimensions in millimeter		

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