

POWER MOSFET

$$I_D = 6A$$

$$V_{DS} = 700V$$

$$R_{DS(on)MAX} = 1.65\Omega$$

Description/ Features

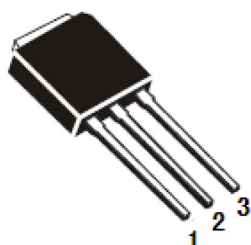
The MJIRF6N70 is used an advanced termination scheme to provide enhanced voltage-blocking capability without degrading performance over time. The new energy efficient design also offers a drain-to-source diode with a fast recovery time. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150°C Tj operation
- Low Power Loss & Low cost
- Fast Switching
- RoHS Compliant

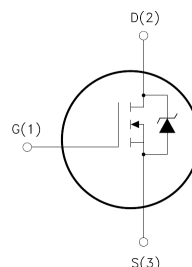
Major Ratings and Characteristics

Characteristics	Values	Units
I_D	6.0	A
I_{DM}	24	A
V_{DS}	700	V
V_{GS}	± 30	V
T_J	150	°C
T storage	-55 ~ 150	°C

Case Styles



- 1、 GATE
- 2、 DRAIN
- 3、 SOURCE



Ordering Information

Part Number	Package	Packaging
MJIRF6N70	TO-251	Tube

MJIRF6N70

Absolute Maximum Rating (Tamb = 25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	700	V
Gate-Source Voltage	V_{GS}	± 30	V
Drain Current-Pulsed	I_{DM}	24	A
Total Dissipation	P_D	90	W
Junction Temperature	T_J	150	°C
Storage Temperature	$T_{stg.}$	-55~150	°C
Single Pulse Avalanche Energy	E_{AS}	410	mJ

Electrical Characteristics(Tamb=25°C)

Characteristic	Symbol	Test Condition	MIN.	MAX.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	700	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2	4	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=700V, V_{GS}=0V$	-	10	μA
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=6A$	-	1.4	V
Forward Trans conductance	G_{fs}	$V_{DS}=10V, I_D=3.0A$	2	-	S
Gate-Body Leakage Current(Vds=0V)	I_{GSS}	$V_{GS}=\pm 30V$	-	± 100	nA
Static Drain-Source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_S=3.0A$	-	1.65	Ω
Thermal Resistance Junction-Case	R_{thJ-C}	-	-	1.3	°C/W

Dynamic Characteristics(Tamb=25°C)

Characteristic	Symbol	Test Condition	MIN.	TYP.	MAX.	Unit
Input Capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V,$ $F=1.0MHz$	-	900	1100	pF
Output Capacitance	C_{OSS}		-	82	105	pF
Reverse Transfer Capacitance	C_{RSS}		-	4.0	7.0	pF

Switching Characteristics($T_{amb}=25^{\circ}\text{C}$)

Characteristic	Symbol	Test Condition	MIN.	TYP.	MAX.	Unit
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=300\text{V}, I_D=6.0\text{A},$ $R_G=25\Omega$	-	30	50	nS
Turn-On Rise Time	T_r		-	50	80	nS
Turn-Off Delay Time	$T_{d(off)}$		-	70	110	nS
Turn-Off Rise Time	T_f		-	50	80	nS
Total Gate Charge	Q_g	$V_{DS}=300\text{V}, I_D=6.0\text{A},$ $V_{GS}=10\text{V}$	-	12	16	nC
Gate-Source Charge	Q_{gs}		-	5	-	nC
Gate-Drain Charge	Q_{gd}		-	2.2	-	nC

Drain-Source Diode Maximum Ratings And Characteristics($T_{amb}=25^{\circ}\text{C}$)

Characteristic	Symbol	Test Condition	MIN.	TYP.	MAX.	Unit
Max. Diode Forward Current	I_S		-	-	6	A
Max. Pulsed Forward Current	I_{SM}		-	-	24	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}, I_S=6.0\text{A}$	-	-	1.4	V
Reverse Recovery Time	T_{rr}	$V_{GS}=0\text{V}, I_S=6.0\text{A},$ $dI_F/dt=100\text{A/uS}$	-	330	-	nS
Reverse Recovery Charge	Q_{rr}		-	2.7	-	uC

Characteristics Curve

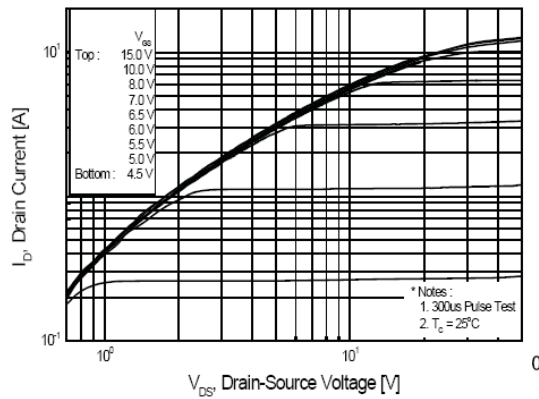


Figure1.Output Characteristic

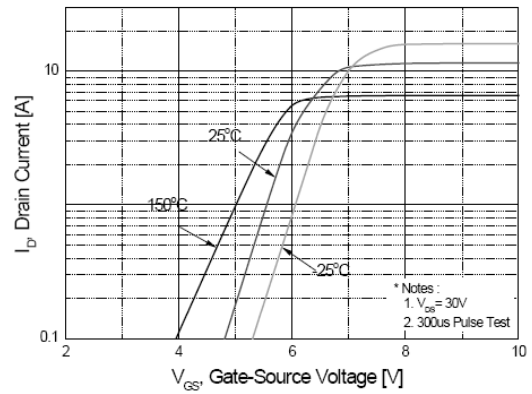


Figure2.Transfer Characteristic

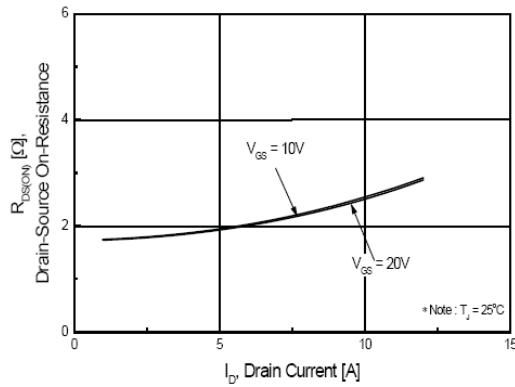


Figure3.On Resistance Vs Drain Current

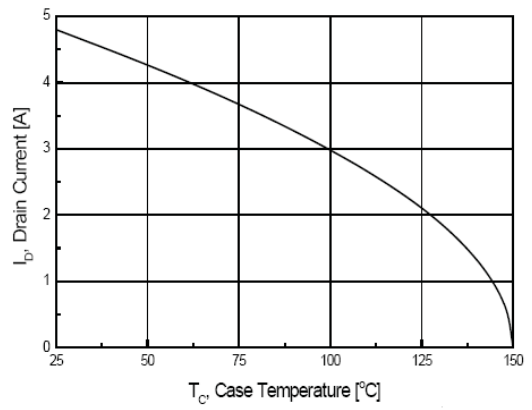


Figure4.Maximum Drain Current vs Case

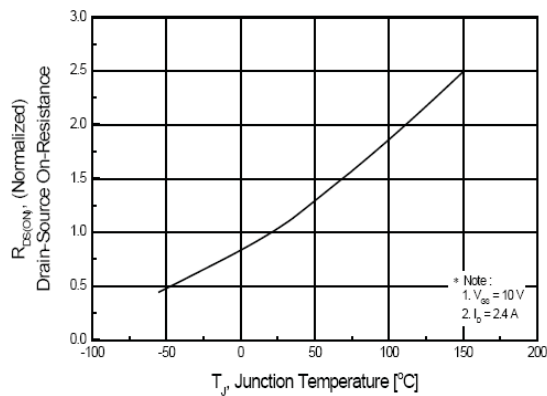


Figure5.On Resistance Vs Junction Temperature

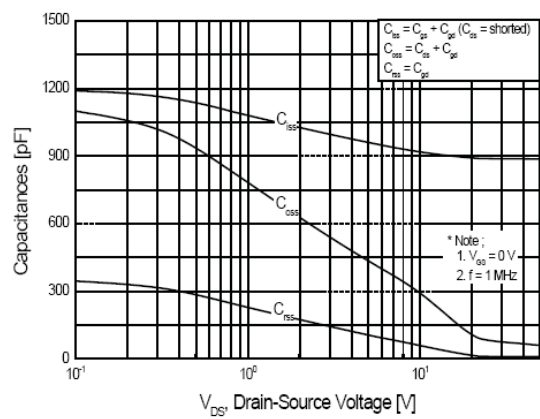


Figure6.Capacitance

Characteristics Curve

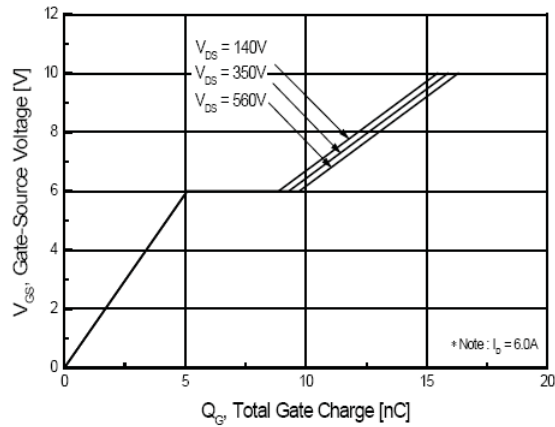


Figure7. Gate Charge Waveform

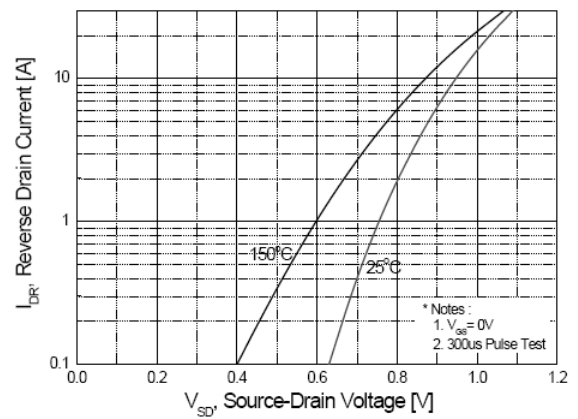


Figure8. Source-Drain Diode Forward Voltage

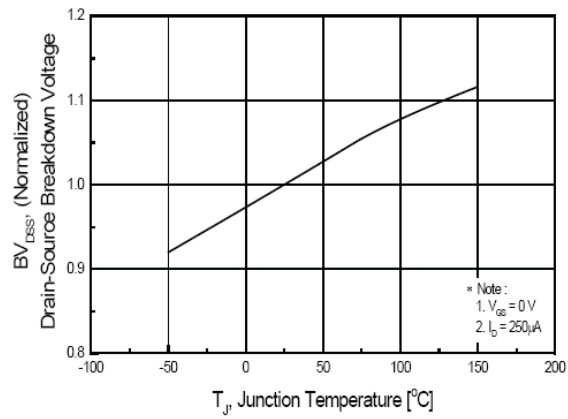


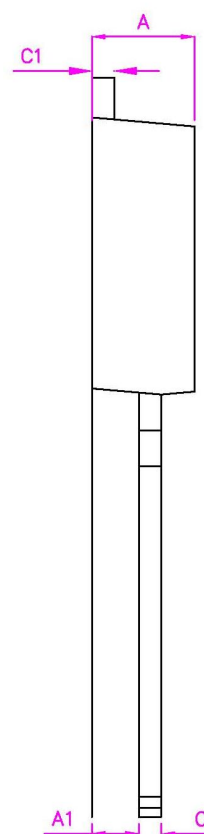
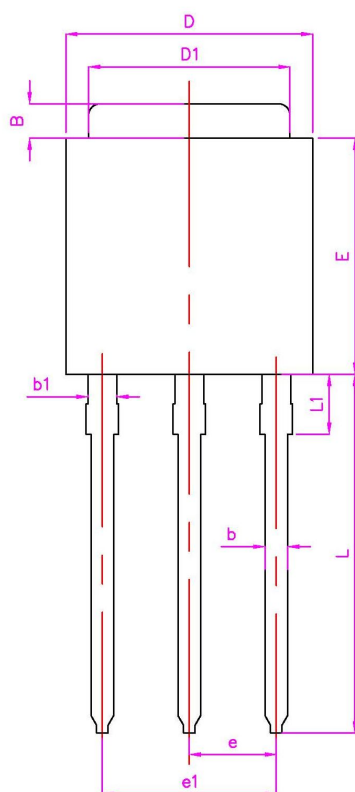
Figure9. Breakdown Voltage Vs Junction

MJIRF6N70

TO-251 Mechanical Data

UNIT.: mm

Symbol	MIN.	NOM.	MAX.	Symbol	MIN.	NOM.	MAX.
A	2.10	-	2.50	D1	5.10	-	5.50
A1	0.95	-	1.30	E	5.30	-	6.30
B	0.80	-	1.25	e	-	2.30	-
b	0.50	-	0.80	L	7.00	-	9.20
b1	0.70	-	0.90	L1	1.45	-	1.95
c	0.45	-	0.70	R	-	0.30	-
C1	0.45	-	0.70				
D	6.35	-	6.80				



Data and specifications subject to change without notice.

This product has been designed and qualified for Industrial Level and Lead-Free.

Qualification Standards can be found on GS's Web site.

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