TranElectric	IRFC9034 Die for Hexfet®

Die Specification

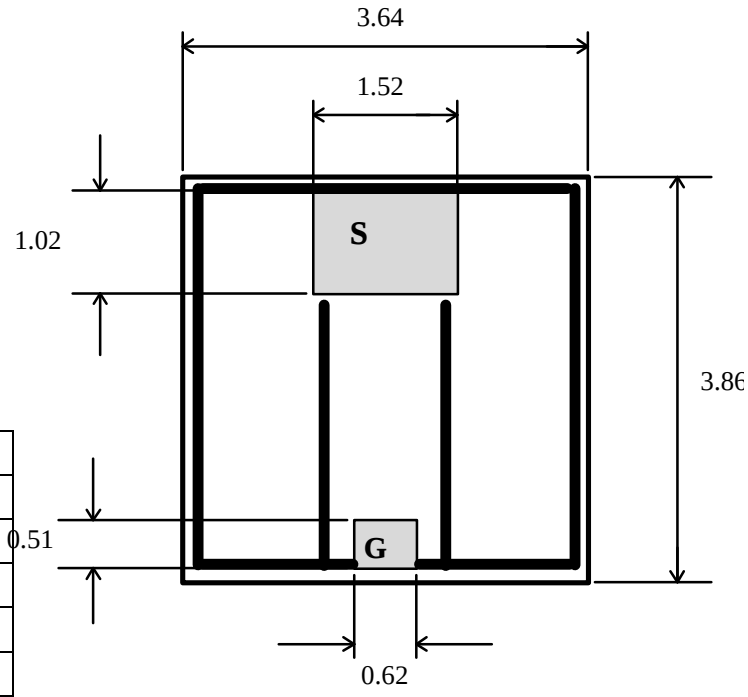
General description :
Hexfet® power MOSFET P-channel die with the following features:

ynamic dv/dt rating
*** Ease of paralleing**
*** Repetitve avalanche rated**
*** Fast switching**

Mechanical Characteristic:

Silicon Chip

Dimension (mm): 3.64*3.86
Dimension (mil): 144*152
Thickness:
Metallization: Al
Recommended wire(mm): 0.30
Recommended wire(mil): 12



Type	Vds	Rds(on) Vgs=10V	Idss @Ids	Vgs(th) Vds=Vgs,Id=250mkA
IRFC9034	-60V	0.140 Ohms	250 mkA	2.0V ... 4.0V

Typical device : IRF9Z34 (in TO-220AB)

HEXFET® Power MOSFET — IRF9Z34

CHANNEL : P
PACKAGE : TO-220AB

Absolut Maximum Rating

	Parameter	Max.	Units
I_D , T_C=25°C	Continuous Drain Current , V_{GS}=-10V	-18	A
I_D , T_C=100°C	Continuous Drain Current V_{GS}=-10V	-13	
I_{DM}	Pulsed Drain Current ❶	-72	
P_D , T_C=25°C	Power Dissipation	88	W
	Linear Derating Factor	0.59	W/°C
V_{GS}	Gate-to-Sourse Voltage	±20	V
E_{AS}	Single Pulse Avalanche Energy ❷	370	mJ
I_{AR}	Avalanche Current	-18	A
E_{AR}	Repetitive Avalanche Energy ❶	8.8	mJ
dv/dt	Peak Diode Recovery dv/dt ❸	-4.5	V/ns
T_J , T_{STG}	Operating Junction and Storage Temperature Range	-55 to +175	°C

Electrical Characteristics , TJ=25°C (unless otherwise specified)

	Parameter	Min	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Sourse Breakdown Voltage	-60			V	V_{GS}=0 , I_D=-250μA
$\Delta V_{(BR)}/\Delta T_J$	Breakdown Voltage Temp. Coefficient		-0.060		V/°C	25°C , I_D=-1mA
$R_{(DS)on}$	Static Drain-to-Source On-Resistance			0.14	Ω	V_{GS}=-10V , I_D=-11A❹
$V_{GS(th)}$	Gate Threshold Voltage	-2.0		-4.0	V	V_{DS}=V_{GS} , I_D=-250μA
g_{fs}	Forward Transconductance	5.9			S	V_{DS}=-25V , I_D=-11A
I_{DSS}	Drain-to-Source Leakage Current			-100	μA	V_{DS}=-60V, V_{GS}=0V
				-500	μA	V_{DS}=-48V ,V_{GS}=0V , T_J=150°C
I_{GSS}	Gate-to-Source Forward Current			100	nA	V_{GS}=20V
	Gate-to-Source Reverse Current			-100	nA	V_{GS}=-20V
Qg	Total Gate Charge			34	nC	V_{GS}=-10V
Qgs	Gate-to-Source Charge			9.9	nC	V_{DS}=-48V
Qgd	Gate-to-Drain Charge			16	nC	I_D=-18A ❹
$t_{d(on)}$	Turn-On Delay Time		18		ns	V_{DD}=-30V
t_r	Rise Time		120			I_D=-18A
$t_{d(off)}$	Turn-Off Delay Time		20			R_G=12Ω
t_f	Fall Time		58			R_D=1.5Ω ❹
L_D	Internal Drain Inductance		4.5		nH	Between lead , 6 mm from package and center of die contact
L_S	Internal Source Inductance		7.5			
C_{ISS}	Input Capacitance		1100		pF	V_{GS}=0
C_{OSS}	Output Capacitance		620			V_{DS}=-25V
C_{RSS}	Reverse Transfer Capacitance		100			f=1.0MHz

Source-Drain Ratings and Characteristics

	Parameter	Min	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)			-18	A	
I_{SM}	Pulsed Source Current (Body Diode) ❶			-72	A	
V_{SD}	Diode Forward Voltage			-6.3	V	I_S=-18A ,V_{GS}=0V ,T_J=25°C ❹
t_{rr}	Reverse Recovery Time		100	200	ns	T_J=25°C, I_F=-18A,
Qrr	Reverse RecoveryCharge		0.28	0.52	μC	di/dt=100A/μs ❹

Thermal resistance

	Parameter	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case			1.7	W/°C
$R_{\theta JC}$	Case-to-Sink, Flat, Greased Surfase		0.50		
$R_{\theta JC}$	Junction-to-Ambient			62	

❶ Reprtitive rating ; pulse width limited by max. junction temperature .
❷ Starting T_J=25°C , L=1.3 mH , R_G=25Ω , I_{AS}=-18A ,VDD=-25V .
❸ I_{SD}≤-18A , di/dt≤170A/μs , V_{DD}≤ $V_{(BR)DSS}$, T_J≤175°C.
❹ Pulse width ≤300μs ; duty cycle≤2%