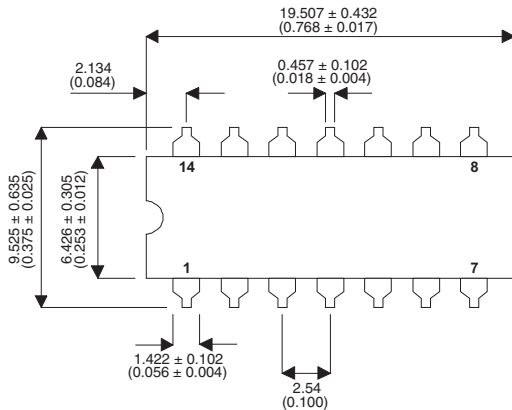


MECHANICAL DATA

Dimensions in mm (inches)



**14 LEAD DUAL IN LINE QUAD
N & P CHANNEL
POWER MOSFETS**

	BV_{DSS} ±100V	
	N-CHANNEL	P-CHANNEL
I_{D(cont)}	1A	-0.75A
R_{DS(on)}	0.7Ω	1.4Ω

FEATURES

- AVALANCHE ENERGY RATED
- HERMETICALLY SEALED
- DYNAMIC dv/dt RATING
- SIMPLE DRIVE REQUIREMENTS
- FOR AUTOMATIC INSERTION
- SIMPLE DRIVE REQUIREMENTS
- EASE OF PARALLELING
- 2 N-CHANNEL/2 P-CHANNEL CO-PACKAGED HEXFETS

N-CHANNEL	P-CHANNEL	N-CHANNEL	P-CHANNEL
1—Drain 1	5—Gate 2	8—Drain 3	12—Gate 4
2—Source 1	6—Source 2	9—Source 3	13—Source 4
3—Gate 1	7—Drain 2	10—Gate 3	14—Drain 4

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

		N-CHANNEL	P-CHANNEL
V _{GS}	Gate – Source Voltage	±20V	±20V
I _D	Continuous Drain Current (V _{GS} = 10V , T _{case} = 25°C)	1.A	-0.75A
I _D	Continuous Drain Current (V _{GS} = 10V , T _{case} = 100°C)	0.6A	-0.5A
I _{DM}	Pulsed Drain Current	4A	-3A
P _D	Power Dissipation @ T _{case} = 25°C	1.4W	1.4W
	Linear Derating Factor	0.011W/°C	0.011W/°C
E _{AS}	Single Pulse Avalanche Energy ²	75mJ	75mJ
dv/dt	Peak Diode Recovery ³	5.5V/ns	-5.5V/ns
T _J , T _{stg}	Operating and Storage Temperature Range	-55 to 150°C	-55 to 150°C
R _{θJC}	Thermal Resistance Junction to Case	6.25°C/W	
R _{θJCA}	Thermal Resistance Junction-to-Ambient	175°C/W	

Notes

- 1) Pulse Test: Pulse Width ≤ 300μs, δ ≤ 2%
- 2) @ V_{DD} = 25V , L ≥ 112mH , R_G = 25Ω , Peak I_L = 1A , Starting T_J = 25°C
- 3) @ I_{SD} ≤ 1A , di/dt ≤ 75A/μs , V_{DD} ≤ BV_{DSS} , T_J ≤ 150°C , Suggested R_G = 24Ω

ELECTRICAL CHARACTERISTICS FOR N-CHANNEL ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS} Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 1\text{mA}$	100			V
ΔBV_{DSS} Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.13		$\text{V}/^{\circ}\text{C}$
$R_{DS(on)}$ Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$ $I_D = 0.6\text{A}$			0.70	Ω
	$V_{GS} = 10\text{V}$ $I_D = 1\text{A}$			0.80	
$V_{GS(th)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu\text{A}$	2		4	V
g_{fs} Forward Transconductance	$V_{DS} \geq 15\text{V}$ $I_{DS} = 0.60\text{A}$	0.86			$\text{S}(\bar{v})$
I_{DSS} Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8V_{DSS}$ $T_J = 125^{\circ}\text{C}$			25	μA
				250	
I_{GSS} Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$			100	nA
I_{GSS} Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100	
DYNAMIC CHARACTERISTICS					
C_{iss} Input Capacitance	$V_{GS} = 0$		180		pF
C_{oss} Output Capacitance	$V_{DS} = 25\text{V}$		82		
C_{rss} Reverse Transfer Capacitance	$f = 1\text{MHz}$		15		
Q_g Total Gate Charge	$V_{GS} = 10\text{V}$ $I_D = 1\text{A}$			15	nC
Q_{gs} Gate – Source Charge	$V_{DS} = 0.5V_{DS}$			7.5	
Q_{gd} Gate – Drain (“Miller”) Charge				7.5	
$t_{d(on)}$ Turn–On Delay Time	$V_{DD} = 50\text{V}$ $I_D = 1\text{A}$ $R_G = 24\Omega$			20	ns
t_r Rise Time				25	
$t_{d(off)}$ Turn–Off Delay Time				40	
t_f Fall Time				40	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S Continuous Source Current				1	A
I_{SM} Pulse Source Current ²				4	
V_{SD} Diode Forward Voltage ¹	$I_S = 1.0\text{A}$ $T_J = 25^{\circ}\text{C}$ $V_{GS} = 0$			1.5	V
t_{rr} Reverse Recovery Time	$I_F = 1\text{A}$ $T_J = 25^{\circ}\text{C}$			200	ns
Q_{rr} Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$ $V_{DD} \leq 50\text{V}$			0.83	μC
t_{on} Forward Turn–On Time			Negligible		
PACKAGE CHARACTERISTICS					
L_D Internal Drain Inductance (from centre of drain pad to die)			4.0		nH
L_S Internal Source Inductance (from centre of source pad to end of source bond wire)			6.0		

Notes

- 1) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS FOR P-CHANNEL ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit		
STATIC ELECTRICAL RATINGS							
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = -1\text{mA}$	-100		V	
ΔBV_{DSS}	Temperature Coefficient of Breakdown Voltage	Reference to 25°C			0.098	$\text{V}/^{\circ}\text{C}$	
$R_{DS(on)}$	Static Drain – Source On–State Resistance ¹	$V_{GS} = -10\text{V}$	$I_D = -0.50\text{A}$			1.4	Ω
		$V_{GS} = -10\text{V}$	$I_D = -0.75\text{A}$			1.73	
$V_{GS(th)}$	Gate Threshold Voltage ¹	$V_{DS} = V_{GS}$	$I_D = -250\mu\text{A}$	-2		-4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq -15\text{V}$	$I_{DS} = -0.50\text{A}$	0.67			$\text{S}(\overline{\tau})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8V_{DSS}$			-25	μA
			$T_J = 125^{\circ}\text{C}$				-250
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = -20\text{V}$				-100	nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = 20\text{V}$				-100	nA
DYNAMIC CHARACTERISTICS							
C_{iss}	Input Capacitance	$V_{GS} = 0$			200		pF
C_{oss}	Output Capacitance	$V_{DS} = -25\text{V}$			85		
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$			30		
Q_g	Total Gate Charge	$V_{GS} = -10\text{V}$	$I_D = -0.75\text{A}$			15	nC
Q_{gs}	Gate – Source Charge	$V_{DS} = 0.5V_{DS}$				7	
Q_{gd}	Gate – Drain (“Miller”) Charge					8	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -50\text{V}$ $I_D = -0.75\text{A}$ $R_G = 24\Omega$				30	ns
t_r	Rise Time					60	
$t_{d(off)}$	Turn–Off Delay Time					40	
t_f	Fall Time					40	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I_S	Continuous Source Current					-0.75	A
I_{SM}	Pulse Source Current ²					-3	
V_{SD}	Diode Forward Voltage	$I_S = -0.75\text{A}$	$T_J = 25^{\circ}\text{C}$			-5.5	V
		$V_{GS} = 0$					
t_{rr}	Reverse Recovery Time	$I_F = -0.75\text{A}$	$T_J = 25^{\circ}\text{C}$			200	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$		$V_{DD} \leq -50\text{V}$		90	μC
t_{on}	Forward Turn–On Time				Negligible		
PACKAGE CHARACTERISTICS							
L_D	Internal Drain Inductance (from centre of drain pad to die)				4.0		nH
L_S	Internal Source Inductance (from centre of source pad to end of source bond wire)				6.0		

Notes

- 1) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.