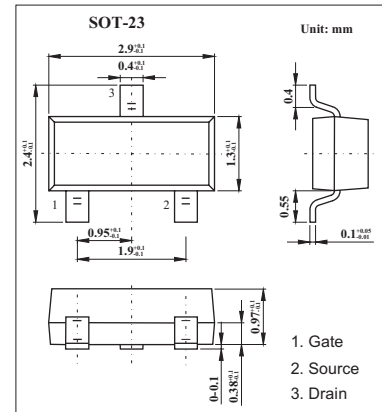
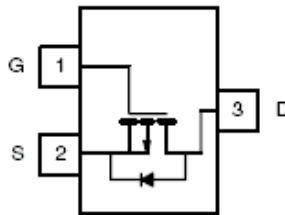


P-Channel 20-V (D-S) MOSFET

KI2351DS

■ Features

- TrenchFET Power MOSFET
- PWM Optimized
- 100 % Rg tested

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	5 sec	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ($T_J=150^\circ\text{C}$) $T_C=25^\circ\text{C}$ $T_C=70^\circ\text{C}$	I_D	-2.8 -2.4	A
Continuous Drain Current ($T_J=150^\circ\text{C}$) *1,2 $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	I_D	-2.2 -1.8	A
Pulsed Drain Current	I_{DM}	-10	A
Continuous Source Drain Diode Current $T_C=25^\circ\text{C}$	I_S	-2	
Continuous Source Drain Diode Current *1,2 $T_A=25^\circ\text{C}$		-0.91	
Power Dissipation $T_C=25^\circ\text{C}$ $T_C=70^\circ\text{C}$	P_D	2.1 1.5	W
Power Dissipation *1,2 $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	P_D	1.0 0.7	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 Surface mounted on 1" x 1" FR4 Board.

*2 $t = 10$ sec

■ Thermal Resistance Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient * $t \leq 5$ sec	R_{thJA}	90	115	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Foot (Drain) Steady State	R_{thJF}	60	75	

* Surface Mounted on 1" X 1" FR4 Board.

KI2351DS

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = -250 μA	-20			V
VDS Temperature Coefficient	ΔV _{DS} /T _J	I _D = -250 μA		-16.7		mV/°C
VGS(th) Temperature Coefficient	ΔV _{GS(th)} /T _J			2.1		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.6		-1.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0 V			-1	μA
		V _{DS} = -20 V, V _{GS} = 0 V, T _J = 55 °C			-10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ -5V, V _{GS} = -4.5V	-10			A
Drain-Source On-State Resistance *	r _{DS(on)}	V _{GS} = -4.5V, I _D = -2.4A		0.092	0.115	Ω
		V _{GS} = -2.5V, I _D = -1.8 A		0.164	0.205	
Forward Transconductance *	g _{fs}	V _{DS} = -10 V, I _D = -2.4A		5.5		S
Input Capacitance	C _{iss}	V _{DS} = -10 V, V _{GS} = 0, f = 1 MHz		250		pF
Output Capacitance	C _{oss}			80		
Reverse Transfer Capacitance	C _{rss}			55		
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -5.0 V, I _D = -2.4 A		3.4	5.1	nC
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5 V, I _D = -2.4A		3.2	5	nC
Gate-Source Charge	Q _{gs}			0.5		
Gate-Drain Charge	Q _{gd}			1.4		
Gate Resistance	R _g	f = 1 MHz		8.5	13	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10V, R _L = 5.26 Ω, I _D = -1.9A, V _{GEN} = -4.5V, R _G = 1 Ω		9	14	ns
Rise Time	t _r			30	45	
Turn-Off Delay Time	t _{d(off)}			32	48	
Fall Time	t _f			16	24	
Continuous Source-Drain Diode Current	I _S	T _C = 25°C			-2	A
Pulse Diode Forward Current*	I _{SM}				-10	
Body Diode Voltage	V _{SD}	I _S = -2.0 A		-0.8	-1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = -2.0 A, di/dt = 100 A/μs, T _J = 25°C		17	26	ns
Body Diode Reverse Recovery Charge	Q _{rr}			5	8	nC
Reverse Recovery Fall Time	t _a			14		ns
Reverse Recovery Rise Time	t _b			3		

* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

■ Marking

Marking	G1
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