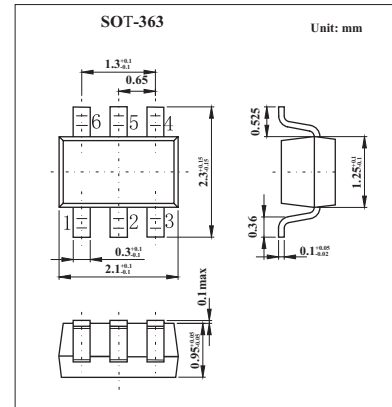
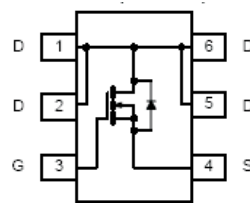


## N-Channel 20-V (D-S) MOSFET

## KI1400DL

## ■ Features

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

Parameter	Symbol	5 secs	Steady State	Unit
Drain-source voltage	$V_{DS}$	20		V
Gate-source voltage	$V_{GS}$	$\pm 12$		V
Continuous drain current ( $T_J = 150^\circ\text{C}$ )* $T_A = 25^\circ\text{C}$ $T_A = 85^\circ\text{C}$	$I_D$	1.7 1.2	1.6 1.0	A
Pulsed drain current	$I_{DM}$	5		A
Continuous source current (diode conduction) *	$I_S$	0.8	0.8	A
Power dissipation * $T_A = 25^\circ\text{C}$ $T_A = 85^\circ\text{C}$	$P_D$	0.625 0.400	0.568 0.295	W
Operating junction and storage temperature range	$T_J, T_{stg}$	-55 to +150		$^\circ\text{C}$

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

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

Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient*	$R_{thJA}$	$t \leq 5$ sec	165	200	$^\circ\text{C}/\text{W}$
		Steady State	180	220	
Maximum Junction-to-Foot (Drain)	$R_{thJF}$	105	130		

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

## KI1400DL

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	0.6			V
Gate-body leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±12 V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 16 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 16 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 85 °C			5	
On-state drain current	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 4.5 V	2			A
Drain-source on-state resistance	r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 1.7 A		0.123	0.150	Ω
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 1.3A		0.195	0.235	
Forward transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1.7 A		5		S
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> = 0.8 A, V <sub>GS</sub> = 0 V		0.78	1.1	V
Total gate charge *	Q <sub>g</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 1.7A		2.1	4.0	nC
Gate-source charge *	Q <sub>gs</sub>			0.3		
Gate-drain charge *	Q <sub>gd</sub>			0.4		
Turn-on time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10V, R <sub>L</sub> = 20 Ω, I <sub>D</sub> = 1A, V <sub>GEN</sub> = 4.5V, R <sub>G</sub> = 6 Ω		10	17	ns
	t <sub>r</sub>			30	50	
Turn-off time	t <sub>d(off)</sub>			14	25	
	t <sub>f</sub>			8	15	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> = 0.8 A, di/dt = 100 A/μs		30	

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

## ■ Marking

Marking	ND
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