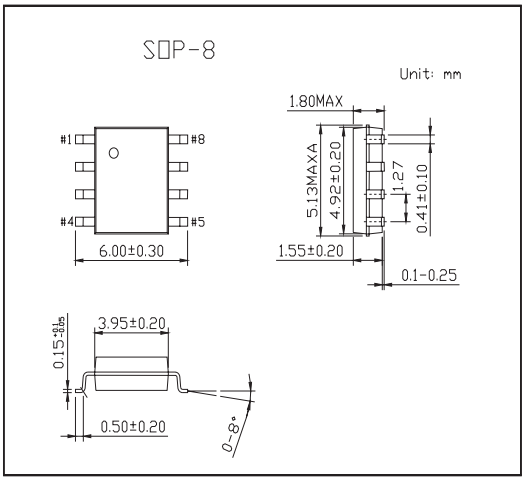
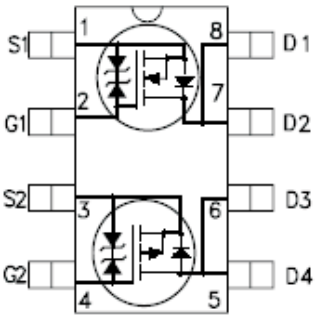
Mesh Overlay Power MOSFET

KTS1C1S250

Features

- Typical $R_{DS(on)}$ (N-Channel)=0.9Ω
- Typical $R_{DS(on)}$ (N-Channel)=2.1Ω
- Gate-source zener diode
- Standard outline for easy automated surface mount assembly





Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage (V_{GS} = 0)	V_{DS}	250	250	V
Drain-gate Voltage (R_{GS} = 20 kΩ)	V_{DGR}	250	250	
Gate-to-Source Voltage	V_{GS}	±25		V
Continuous Drain Current, @ T_C = 25℃	I_D	0.75	0.60	A
Continuous Drain Current, @ T_C = 100℃	I_D	0.47	0.38	
Pulsed Drain Current	I_{DM}	3	2.4	
Total Dissipation at T_C = 25℃ Single Operation	P_{TOT}	1.6		W
Total Dissipation at T_C = 25℃ Dual Operation		2		
Junction and Storage Temperature Range	T_J, T_{STG}	-65 to 150		℃
Thermal Resistance Junction-ambient Max (Single Operating)	$R_{thj\text{-}amb}$ *	62.5		℃/W
(Dual Operating)		78		

* Mounted on 0.5 in□pad of 2oz. copper.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250 μA, V_{GS} = 0	N-Ch	250			V
		I_D = 250 μA, V_{GS} = 0	P-Ch	250			V
Zero Gate Voltage Drain Current (V_{GS} = 0)	I_{DSS}	V_{DS} = Max Rating	N-Ch			1	μA
			P-Ch			1	μA
		V_{DS} = Max Rating, T_C = 125 ℃	N-Ch			10	μA
			P-Ch			10	μA
Gate-body Leakage Current (V_{DS} = 0)	I_{GSS}	V_{GS} = ±20V	N-Ch			±10	μA
			P-Ch			±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	N-Ch	2	3	4	V
		V_{DS} = V_{GS}, I_D = 250 μA	P-Ch	2	3	4	V
Static Drain-source On Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 0.40A	N-Ch		0.9	1.4	Ω
		V_{GS} = 10V, I_D = 0.30A	P-Ch		2.1	2.8	Ω
Input Capacitance	C_{iss}	N-Channel	N-Ch		325		pF
			P-Ch		260		pF
Output Capacitance	C_{oss}	V_{DS} = 25V, f = 1 MHz, V_{GS} = 0	N-Ch		51		pF
		P-Channel	P-Ch		52		pF
Reverse Transfer Capacitance	C_{rss}	V_{DS} = 25V, f = 1 MHz, V_{GS} = 0	N-Ch		24		pF
			P-Ch		25.5		pF
Gate Input Resistance	R_g	f=1 MHz Gate DC Bias=0 Test Signal Level=20mV Open Drain	N-Ch		6		Ω
			P-Ch		6		Ω
Turn-on Delay Time	$t_{d(on)}$	N-Channel	N-Ch		9		ns
		V_{DD}=125V,I_D=1.5A,R_G=4.7Ω, V_{GS} = 10V	P-Ch		12		ns
Rise Time	t_r	P-Channel	N-Ch		11		ns
		V_{DD}=125V,I_D=1.5A,R_G=4.7Ω, V_{GS}=10V	P-Ch		22		ns
Total Gate Charge	Q_g	N-Channel	N-Ch		15	20	nC
		V_{DD} =200V, I_D=1.5A,V_{GS} = 10V	P-Ch		16	21	nC
Gate-Source Charge	Q_{gs}		N-Ch		1.9		nC
		P-Channel	P-Ch		1.4		nC
Gate-Drain Charge	Q_{gd}	V_{DD} = 200V, I_D= 1.5A,V_{GS} = 10V	N-Ch		7		nC
			P-Ch		7.6		nC
Turn-off Delay Time	$t_{d(off)}$	N-Channel	N-Ch		31		ns
		V_{DD} = 125V, I_D = 1.5A,R_G = 4.7Ω, V_{GS} = 10V	P-Ch		29.5		ns
Fall Time	t_f	P-Channel	N-Ch		11		ns
		V_{DD} = 200V, I_D = 1.5A,R_G = 4.7Ω, V_{GS} = 10V	P-Ch		7		ns
Source-drain Current	I_{SD}		N-Ch			0.75	A
			P-Ch			0.6	A
Source-drain Current (pulsed) *1	I_{SDM}		N-Ch			3	A
			P-Ch			2.4	A

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Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Forward On Voltage *2	V_{SD}	I_{SD} = 3A, V_{GS} = 0	N-Ch			1.5	V
		I_{SD} = 3A, V_{GS} = 0	P-Ch			1.5	V
Reverse Recovery Time	t_{rr}	N-Channel	N-Ch		127		ns
		I_{SD} = 0.8A, di/dt = 100A/μs,	P-Ch		143		ns
Reverse Recovery Charge	Q_{rr}	V_{DD} = 50V, T_j = 150℃	N-Ch		450		nC
		P-Channel	P-Ch		806		nC
Reverse Recovery Curren	I_{RRM}	I_{SD} = 0.60A, di/dt = 100A/μs,	N-Ch		7		A
		V_{DD} = 40V, T_j = 150℃	P-Ch		11		A
Gate-Source Breakdown Voltage	BV_{GSO}	I_{gs}=± 500 μA (Open Drain)		± 25			V

*1 Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %.

*2 Pulse width limited by safe operating area