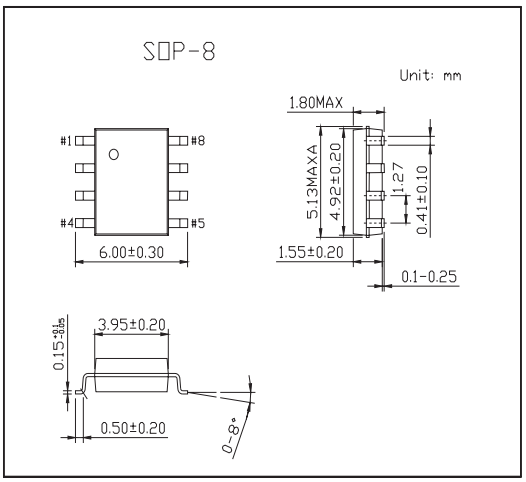
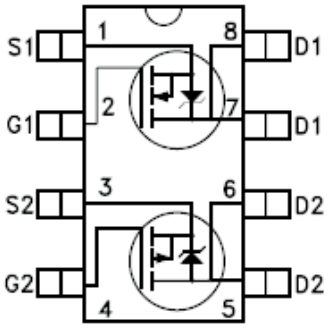
STripFET ™ Power MOSFET

KTS3C3F30L



■ Features

- Typical $R_{DS(on)}$ (N-Channel)=50mΩ
- Typical $R_{DS(on)}$ (N-Channel)=140mΩ
- Standard outline for easy automated surface mount assembly
- Low threshold drive



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage (V_{GS} = 0)	V_{DS}	30		V
Drain-gate Voltage (R_{GS} = 20 kΩ)	V_{DGR}	30		
Gate-to-Source Voltage	V_{GS}	±16		V
Continuous Drain Current, at T_C = 25℃	I_D	3.5	2.7	A
Continuous Drain Current, at T_C = 100℃	I_D	2.2	1.7	
Pulsed Drain Current	I_{DM}	14	11	
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		
Maximum Lead Temperature For Soldering Purpose	T_l	300		℃

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

KTS3C3F30L

■ 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	30			V
		I_D = 250 μA, V_{GS} = 0	P-Ch	30			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} = ±16V	N-Ch			±10	μA
			P-Ch			±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	N-Ch	1			V
		V_{DS} = V_{GS}, I_D = 250 μA	P-Ch	1			V
Static Drain-source On Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 1.75A	N-Ch		50	65	mΩ
		V_{GS} = 10V, I_D = 1.5A	P-Ch		140	165	mΩ
		V_{GS} = 4.5V, I_D = 1.75A	N-Ch		60	90	mΩ
		V_{GS} = 4.5V, I_D = 1.5A	P-Ch		160	200	mΩ
Forward Transconductance	g_{fs}	V_{DS} = 15 V I_D= 1.75 A	N-Ch		5.5		S
		V_{DS} = 15 V I_D= 1.5 A	P-Ch		4		S
Input Capacitance	C_{iss}	N-Channel	N-Ch		320		pF
			P-Ch		420		pF
Output Capacitance	C_{oss}	V_{DS} = 25V, f = 1 MHz, V_{GS} = 0	N-Ch		90		pF
		P-Channel	P-Ch		95		pF
Reverse Transfer Capacitance	C_{rss}	V_{DS} = 25V, f = 1 MHz, V_{GS} = 0	N-Ch		40		pF
			P-Ch		30		pF
Turn-on Delay Time	$t_{d(on)}$	N-Channel	N-Ch		27		ns
		V_{DD}=15V,I_D=1.75A,R_G=4.7Ω, V_{GS} = 4.5V	P-Ch		14.5		ns
Rise Time	t_r	P-Channel	N-Ch		40		ns
		V_{DD}=15V,I_D=1.5A,R_G=4.7Ω, V_{GS}=4.5V	P-Ch		37		ns
Total Gate Charge	Q_g	N-Channel	N-Ch		8.5	12	nC
		V_{DD} =24V, I_D=3.5A,V_{GS} = 4.5V	P-Ch		4.8	7	nC
Gate-Source Charge	Q_{gs}		N-Ch		2		nC
		P-Channel	P-Ch		1.7		nC
Gate-Drain Charge	Q_{gd}	V_{DD} = 24V, I_D= 3A,V_{GS} = 4.5V	N-Ch		4		nC
			P-Ch		2		nC
Turn-off Delay Time	$t_{d(off)}$	N-Channel	N-Ch		30		ns
		V_{DD} = 15V, I_D = 1.75A,R_G = 4.7Ω, V_{GS} = 4.5V	P-Ch		90		ns
Fall Time	t_f	P-Channel	N-Ch		20		ns
		V_{DD} = 15V, I_D = 1.5A,R_G = 4.7Ω, V_{GS} = 4.5V	P-Ch		23		ns
Source-drain Current	I_{SD}		N-Ch			3.5	A
			P-Ch			3	A
Source-drain Current (pulsed) *1	I_{SDM}		N-Ch			14	A
			P-Ch			12	A

KTS3C3F30L

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Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Forward On Voltage *2	V_{SD}	I_{SD} = 3.5A, V_{GS} = 0	N-Ch			1.2	V
		I_{SD} = 3A, V_{GS} = 0	P-Ch			1.2	V
Reverse Recovery Time	t_{rr}	N-Channel	N-Ch		28		ns
		I_{SD} = 3.5A, di/dt = 100A/μs,	P-Ch		35		ns
Reverse Recovery Charge	Q_{rr}	V_{DD} = 15V, T_j = 150℃	N-Ch		18		nC
		P-Channel	P-Ch		25		nC
Reverse Recovery Curren	I_{RRM}	I_{SD} = 3A, di/dt = 100A/μs,	N-Ch		1.3		A
		V_{DD} = 15V, T_j = 150℃	P-Ch		1.5		A

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

*2 Pulse width limited by safe operating area