

SMD Type

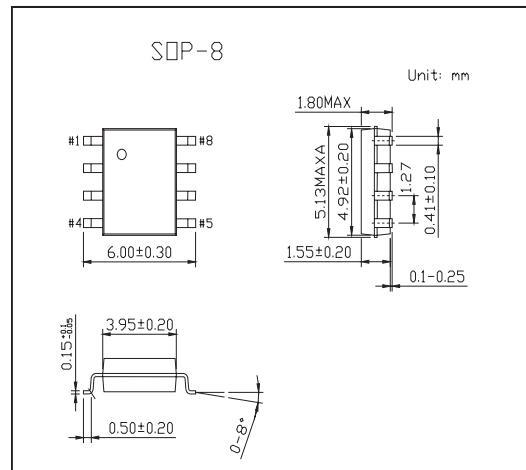
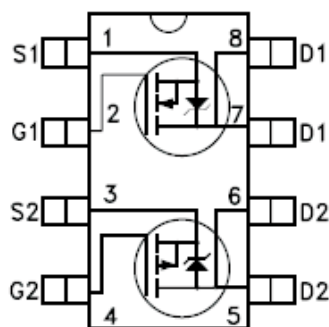
IC

STripFET™ Power MOSFET

KTS3C3F30L

Features

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



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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage ($V_{GS} = 0$)	V_{DS}	30		V
Drain-gate Voltage ($R_{GS} = 20\text{ k}\Omega$)	V_{DGR}	30		
Gate-to-Source Voltage	V_{GS}	± 16		V
Continuous Drain Current, at $T_c = 25^\circ\text{C}$	I_D	3.5	2.7	A
Continuous Drain Current, at $T_c = 100^\circ\text{C}$	I_D	2.2	1.7	
Pulsed Drain Current	I_{DM}	14	11	
Total Dissipation at $T_c = 25^\circ\text{C}$ Single Operation	P_{TOT}	1.6		W
Total Dissipation at $T_c = 25^\circ\text{C}$ Dual Operation		2		
Junction and Storage Temperature Range	T_J, T_{STG}	-65 to 150		$^\circ\text{C}$
Thermal Resistance Junction-ambient Max (Single Operating)	$R_{thj-amb}^*$	62.5		$^\circ\text{C/W}$
(Dual Operating)		78		
Maximum Lead Temperature For Soldering Purpose	T_l	300		$^\circ\text{C}$

* Mounted on 0.5 in² pad of 2oz. copper.

KTS3C3F30L

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditions		Min	Typ	Max	Unit
Drain-source Breakdown Voltage	V _{(BR)DSS}	I _D = 250 μ A, V _{GS} = 0	N-Ch	30			V
		I _D = 250 μ A, V _{GS} = 0	P-Ch	30			V
Zero Gate Voltage Drain Current (V _{GS} = 0)	I _{DSS}	V _{DS} = Max Rating V _{DS} = Max Rating, T _c = 125 °C	N-Ch			1	μ A
			P-Ch			1	μ A
			N-Ch			10	μ A
			P-Ch			10	μ A
Gate-body Leakage Current (V _{DS} = 0)	I _{GSS}	V _{GS} = ±16V	N-Ch			±10	μ A
			P-Ch			±10	μ A
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	N-Ch	1			V
		V _{DS} = V _{GS} , I _D = 250 μ A	P-Ch	1			V
Static Drain-source On Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1.75A	N-Ch		50	65	m Ω
		V _{GS} = 10V, I _D = 1.5A	P-Ch		140	165	m Ω
		V _{GS} = 4.5V, I _D = 1.75A	N-Ch		60	90	m Ω
		V _{GS} = 4.5V, I _D = 1.5A	P-Ch		160	200	m Ω
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 =4.7 Ω , 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 =4.7 Ω , 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}	P-Channel	N-Ch		2		nC
			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 = 4.7 Ω , 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 = 4.7 Ω , 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■ Electrical Characteristics $T_a = 25^\circ\text{C}$

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

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

*2 Pulse width limited by safe operating area