

LKS0405CG

40V Complementary MOSFET



Description

The LKS0405CG uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFETs can be used in a wide variety of applications.

The LKS0405CG is available in SOP8 package.



SOP8 Package

Features

- N-Channel
 $V_{DS}=40V$, $I_D=5.5A$
 $R_{DS(ON)} = 22m\Omega(TYP) @ V_{GS}=10V$
- P-Channel
 $V_{DS}=-40V$, $I_D=-5A$
 $R_{DS(ON)} = 58m\Omega(TYP) @ V_{GS}=-10V$

Applications

- FAN
- Inverters

Typical Application

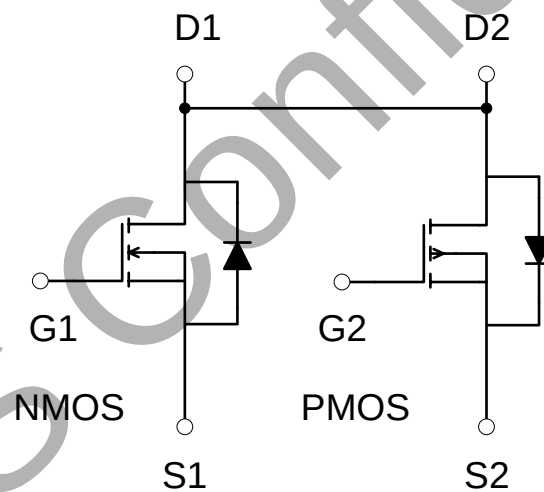


Figure 1. Schematic Diagram



Ordering Information

Part Number	Package	Packing	Marking
LKS0405CG	SOP8	Tape & Reel 4000 PCS/Reel	LKS0405 XXXXXXYC ZZZWWG

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Pin Configuration and Marking Information

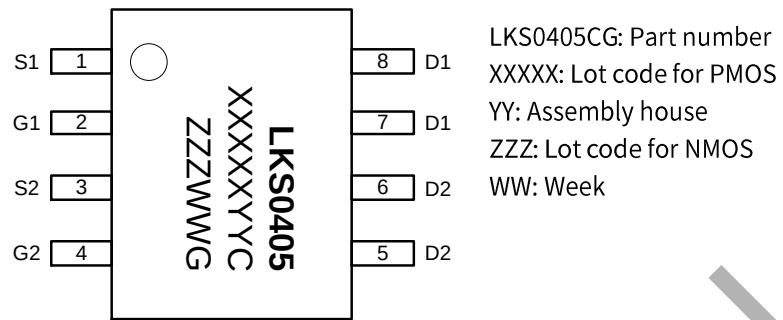


Figure2. Pin configuration

Pin Definition

Pin No.	Name	Description
1	S1	NMOS Source
2	G1	NMOS Gate
3	S2	PMOS Source
4	G2	PMOS Gate
5、6	D2	PMOS Drain
7、8	D1	NMOS Drain

Absolute Maximum Ratings (Note 1)

Symbol	Parameters		Range		Units
			N-Channel	P-Channel	
V_{GS}	Gate-Source Voltage		± 20	± 20	V
V_{DS}	Drain-Source Voltage		40	-40	V
I_D	Continuous Drain Current	$T_c=25^{\circ}\text{C}$	5.5	-5	A
P_D	Maximum Power Dissipation	$T_c=25^{\circ}\text{C}$	2	2	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		-55 to 150	-55 to 150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (note 2)		145	145	$^{\circ}\text{C/W}$

Note 1: Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. Under “recommended operating conditions” the device operation is assured, but some particular parameter may not be achieved. The electrical characteristics table defines the operation range of the device, the electrical characteristics is assured on DC and AC voltage by test program. For the parameters without minimum and maximum value in the EC table, the typical value defines the operation range, the accuracy is not guaranteed by spec.

Note 2: Surface Mounted on FR4 Board, $t \leq 10$ sec.



N-Channel Electrical Characteristics (Notes 3, 4) (Unless otherwise specified, $T_A = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Off Characteristics						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	40	-	-	V
I _D SS	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	-	-	1	μA
I _G SS	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 5)						
V _{GS} (th)	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	2.0	2.5	V
R _{DS} (ON)	Drain-Source On-State Resistance	V _{GS} =10V, I _D =5A	-	22		mΩ
Dynamic Characteristics (Note 5)						
C _I SS	Input Capacitance	V _{DS} =20V, V _{GS} =0V, F=1.0MHz	-	700	-	pF
C _O SS	Output Capacitance		-	63	-	pF
C _r SS	Reverse Transfer Capacitance		-	46	-	pF
Drain-Source Diode Characteristics						
V _S D	Diode Forward Voltage (Note 5)	V _{GS} =0V, I _S =5A		0.85		V



P-Channel Electrical Characteristics (Notes 3, 4) (Unless otherwise specified, $T_A = 25^\circ\text{C}$)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Off Characteristics						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-40	-	-	V
I _D SS	Zero Gate Voltage Drain Current	V _D S=-40V, V _G S=0V	-	-	-1	μA
I _G SS	Gate-Body Leakage Current	V _G S=±20V, V _D S=0V	-	-	±100	nA
On Characteristics (Note 5)						
V _{GS} (th)	Gate Threshold Voltage	V _D S=V _G S, I _D =-250μA	-1.0	-1.6	-2.5	V
R _D S(ON)	Drain-Source On-State Resistance	V _G S=-10V, I _D =-5A	-	58		mΩ
Dynamic Characteristics (Note 5)						
C _I SS	Input Capacitance	V _D S=-20V, V _G S=0V, F=1.0MHz	-	566	-	pF
C _O SS	Output Capacitance		-	67	-	pF
C _R SS	Reverse Transfer Capacitance		-	42	-	pF
Drain-Source Diode Characteristics						
V _S D	Diode Forward Voltage (Note 5)	V _G S=0V, I _S =-5A		-0.86		V

Note 3: Production testing of the chip is performed at 25°C .

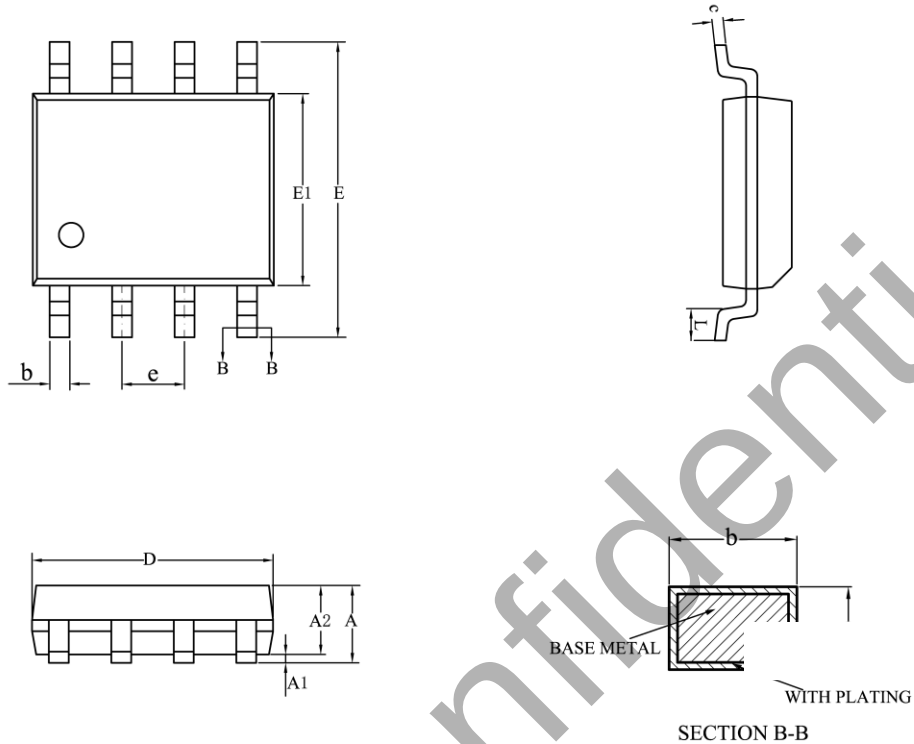
Note 4: The maximum and minimum parameters specified are guaranteed by test, the typical value are guaranteed by design, characterization and statistical analysis.

Note 5: Guaranteed by design, not subject to production



Package Information

SOP8 Package Outline



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.30	—	1.80
A1	0.05	—	0.25
A2	1.25	1.40	1.65
b	0.33	—	0.51
c	0.17	—	0.25
D	4.70	4.90	5.10
E	5.80	6.00	6.30
E1	3.70	3.90	4.10
e	1.27BSC		
L	0.40	—	1.00



Revision Information

Revision	Date	Notes
Rev.1.0	2024/11	Initial Release

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Electronic device scrap description

After the end of its life cycle, the product is processed by the customer in accordance with the scrap process of general electronic products.

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