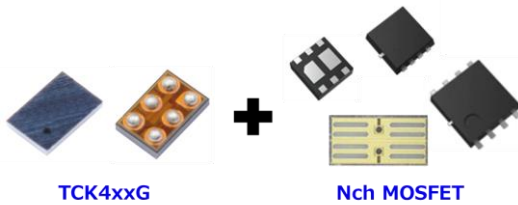


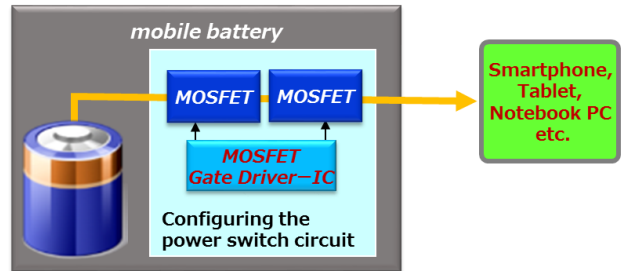
Introduction of Toshiba MOSFET Gate Driver ICs

MOSFET gate driver ICs (TCK4**G series) are gate driver ICs for driving MOSFETs with a built-in boost circuit and protection circuits. Switching circuit can be configured by combining with an external MOSFET suitable for the application.

It is ideal for load switch circuits such as mobile and wearable equipments, and other devices that require high-density mounting, as well as for various power management switch circuits.



Product appearance



Application example of MOSFET Gate Driver ICs

Main characteristics

• Ultra small package

TCK40xG: 1.2x0.8mm (typ.), t: 0.55mm (max) (WCSP6E)

TCK42xG: 1.2x0.8mm (typ.), t: 0.35mm (max) (WCSP6G)

• Wide input voltage

$V_{IN\ max} 40\ V$, $V_{IN_opr} = 2.7\ to\ 28\ V$ (TCK40xG, TCK42xG)

• Gate-source voltage (5.6V, 10V) setting depending on input voltage with a built-in charge pump circuit: V_{GATE}

V_{GATE} : 10V/5.6V (TCK42xG)

• Over Voltage Lock Out (OVLO) Lineup

$V_{IN_OVLO} = 6.31/10.83/14.29/23.26/27.73\ V$ (typ.) 5 type lineup (TCK42xG)

• Low standby current

0.9uA max @ 12V stand-by (TCK42xG)

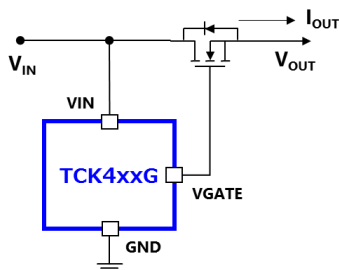
WCSP6E	WCSP6G
Bottom View	Bottom View
1.2x0.8	1.2x0.8

Product page : [Click](#)

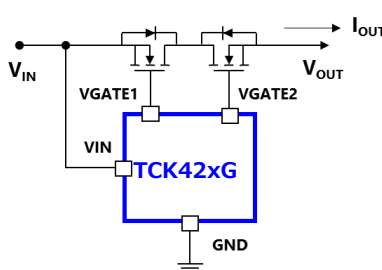
Main Usage example (Circuit example)

There are a variety of uses, including single high-side, back-to-back load switches and power multiplexers.

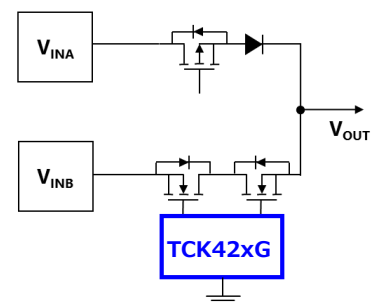
High side



Back to Back



Power Multiplexer



MOSFET Gate Driver ICs Selection Table

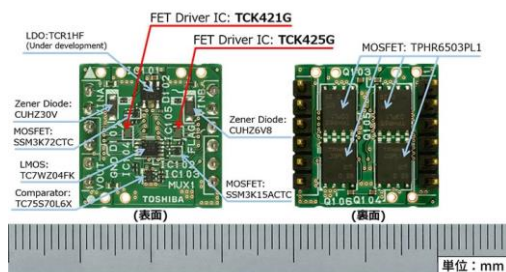
Product Number	TCK401G →	TCK402G →	TCK420G →	TCK421G →	TCK422G →	TCK423G →	TCK424G →	TCK425G →
Stock Check	Buy Online	Buy Online	Buy Online	Buy Online	Buy Online	Buy Online	Buy Online	Buy Online
Maximum input voltage V_{IN} max	40 V							
Input voltage range V_{IN} max	2.7 to 28 V							
Gate Drive voltage V_{GATE}	4 to 10 V (V_{IN} dependency)			10 V		5.6 V		
Package	WCSP6E(Link) → (1.2x0.8 mm, t:0.55 mm)			WCSP6G(Link) → (1.2x0.8 mm, t:0.35 mm)				
Overvoltage Lockout Threshold	28 V	27.73 V	23.26 V	14.29 V	10.83 V	6.31 V		
Under Voltage Lockout Threshold	2.7 V			2 V				
Usage	Common source (Single Hi-side is OK)			Common drain (Single high side is OK)				

Introduction to Reference Design (Power Multiplexer Circuit Using MOSFET Gate Driver ICs)

Reference designs provide not only circuit diagrams but also pattern diagrams, Gerber data, sample software as reference circuits to advance equipment design quickly. MOSFET gate driver ICs, eFuse ICs, zener diodes and small package MOSFETs selected from Toshiba's diverse lineup are used to create ideal diode like characteristics with BBM(Break-Before-Make) and MBB(Make-Before-Break) switching.

Reference Model Description

Circuit	Two-input, one-output power multiplexer
VINA input/ VINB input	5 V/20 V, 5 V/12 V, 9 V/20 V, 5 V/12 V, 12 V/24 V
Output current (maximum)	3 A~5 A



PCB photo example

Reference Design (Power Multiplexer Circuit)

[Click](#)

Related LINK

- Product page : MOSFET Gate Driver ICs
- Parametric search for Nch-MOSFET
- Parametric search for MOSFET gate driver ICs.
- Online distributor purchase, inventory search page

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