

PI5101 Features

- Ultra low 360 $\mu\Omega$ $R_{DS(on)}$
- Extremely low gate charge
- Very low gate resistance
- High density, low profile
- Very low package inductance
- Low thermal resistance
- Low thermal impedance $R\theta_{J_PCB} < 10^{\circ}\text{C/W}$
- Small foot print

PI5101



4.1 mm x 8 mm x 2 mm
 Thermally Enhanced LGA

Product Description

The PI5101 $\mu R_{DS(on)}$ FET™ solution combines a high-performance 5 V, 360 $\mu\Omega$ lateral N-Channel MOSFET with a thermally enhanced high density 4.1 mm x 8 mm x 2 mm land-grid-array (LGA) package to enable world class performance in the footprint area of an industry standard SO-8 package. The PI5101 offers unprecedented figure-of-merits for DC & switching applications. The PI5101 will replace up to 6 conventional "SO-8 form factor" devices for the same on-state resistance, reducing board space by ~80%. The device offers unprecedented figure-of-merit for $R_{DS(on)} \times Q_G$, gate resistance (RG) and package inductance (LDS) outperforming conventional Trench MOSFETs and enabling very low loss operation. The PI5101 LGA package is fully compatible with industry standard SMT assembly processes.

Applications

- Power path management solutions
- Active ORing & load switches
- High current DC-DC converters

Part Numbering

Part Number	Package	Continuous Current	Pulsed Current	Thermal Resistance	Low Package Inductance	Low Gate Charge	On-State Resistance	Shipment Packaging
PI5101-00-LGIZ	4.1 x 8 mm LGA	60 A	150 A	$R\theta_{J_PCB}$: 6 $^{\circ}\text{C/W}$ $R\theta_{J_A}$: 40 $^{\circ}\text{C/W}$	0.1 nH	60 nC	360 u Ohms	Tape and Reel

Maximum Ratings and Thermal Characteristics (TA = 25 $^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-to-Source Voltage	V_{DS}	5	V
Gate-to-Source Voltage	V_{GS}	+/- 5	
Drain Current	Continuous	ID	60
	Pulsed	IDM	150
Single Pulse Avalanche Current	$T_{AV} < 100 \mu\text{s}$	IAS	100
Maximum Power Dissipation	$T_A = 25^{\circ}\text{C}$	PD	3.1
	$T_A = 70^{\circ}\text{C}$		2
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$
Thermal Resistance(1)	Junction-to-Ambient	R_{thJ-A}	40
	Junction-to-PCB	$R_{thJ-PCB}$	6