

P-Channel Enhancement Mode Field Effect Transistor

General Description

The P1403EK uses advanced trench technology to provide excellent $R_{DS(ON)}$.

This device is ideal for load switch and battery protection applications.

Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

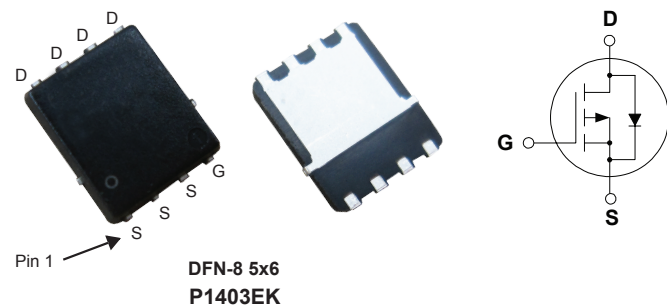
Product Summary

BVDSS	RDSON	ID
-30V	10mΩ	-52A

Applications

- Load Switch
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

DFN-8 5x6 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-52	A
I_{DM}	Pulsed Drain Current	-150	A
EAS	Single Pulse Avalanche Energy ¹	88	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	62.5	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient	---	50	°C/W
$R_{\theta JC}$	Junction-to-Case	---	2	°C/W

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Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =-250uA	-30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-25A	---	---	10	mΩ
		V _{GS} =-4.5V, I _D =-20A	---	---	18	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-1	---	-2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V , T _J =25°C	---	---	-1	uA
		V _{DS} =-24V, V _{GS} =0V , T _J =125°C	---	---	-100	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-5V , I _D =-15A	---	32	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	2	---	Ω
Q _g	Total Gate Charge	V _{DS} =-15V , I _D =-12A V _{GS} =-10V	---	40	---	nC
Q _{gs}	Gate-Source Charge		---	4	---	
Q _{gd}	Gate-Drain Charge		---	8	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, V _{GS} =-10V, R _G =6Ω I _D =-2A	---	18	---	ns
T _r	Rise Time		---	30	---	
T _{d(off)}	Turn-Off Delay Time		---	50	---	
T _f	Fall Time		---	95	---	
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V , f=1MHz	---	2000	---	pF
C _{oss}	Output Capacitance		---	400	---	
C _{rss}	Reverse Transfer Capacitance		---	270	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	-52	A
I _{SM}	Pulsed Source Current		---	---	-150	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =-30A	---	---	-1.2	V

Note :

1.The test condition is V_{DD}=50V , V_{GS}=10V , L=0.1mH , I_{AS}=42A

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