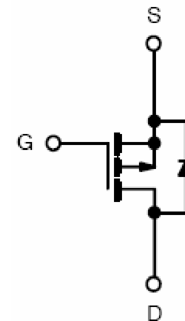
WPM3401

P-Channel Enhancement Mode MOSFET

Description

The WPM3401 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology.

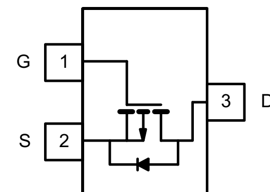
This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, notebook computer power management and other battery powered circuits where high-side switching.



P−Channel MOSFET

Features

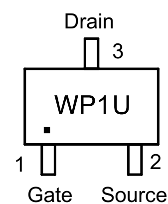
- -30V/-4.3A,RDS(ON)<53mΩ@VGS= -10V
- -30V/-3.4A,RDS(ON)<56mΩ@VGS=-4.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOT23-3 package design



Top View

Application

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch



U = Date Code

WP1 = Specific Device Code

Order information

Part Number	Package	Shipping
WPM3401-3/TR	SOT23-3	3000 Tape&Reel

WPM3401

Absolute Maximum Ratings (TA=25 ℃unless otherwise specified)

Parameter	Symbol		Value	Unit
V_{DS}	Drain-Source voltage		-30	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	Steady-State TA=25℃	-4.6	A
		Steady-State TA=70℃	-3.6	
I_{DM}	Pulse Drain Current		-20	A
P_D	Power Dissipation	TA=25℃	1.3	W
		TA=70℃	0.8	
T_J	Operating Junction Temperature Range		-55~150	℃
Tstg	Storage Temperature Range			
$R_{θJA}$	Thermal Resistance-Junction to Ambient		95	℃/W

Electrical Characteristics

(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	-0.5	-1.0	-1.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V,V_{GS}=0V			-1	uA
		V_{DS}=-24V,V_{GS}=0V T_J=85℃			-5	
On State Drain Current (Pulse)	$I_{D(on)}$	V_{DS}= -5V,V_{GS} =-4.5V	-10			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-4.3A		0.038	0.053	Ω
		V_{GS}=-4.5V,I_D=-3.5A		0.043	0.056	
Forward Transconductance	gfs	V_{DS}=-15V,I_D=-4.3A		13		S
Diode Forward Voltage	V_{SD}	I_S= -1.0A,V_{GS} =0V		-0.75	-1.5	V

Dynamic

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-10V I_D= -4.3A		27		nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			5		
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V f=1MHz		1250		pF
Output Capacitance	C_{oss}			106		
Reverse Transfer Capacitance	C_{rss}			90		
Turn-On Time	$t_{d(on)}$	V_{DD}=-15V,R_L=15Ω I_D≡-1.0A,V_{GEN}=-10V R_G=6Ω		10		nS
	t_r			18		
Turn-Off Time	$t_{d(off)}$			60		
	t_f			9		