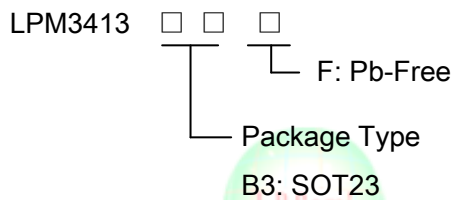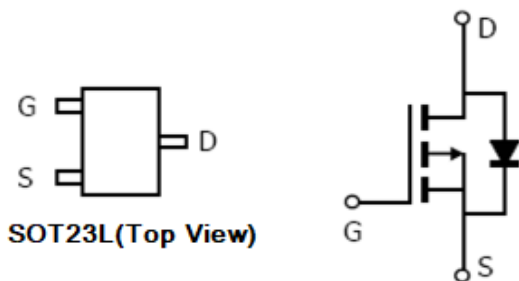# P-Channel Enhancement Mode Field Effect Transistor

General Description

The LPM3413 uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for using as a load switch or in PWM applications. Standard Product LPM3413 is Pb-free. LPM3413 is a Green Product ordering option. LPM3413 are electrically identical.

Features

◆ -20V/2.0A, $R_{DS(ON)}$ ≤130mΩ(max.)@VGS=-2.5V

◆ -20V/3A, $R_{DS(ON)}$ ≤95mΩ(max.)@VGS=-4.5V

◆ Super high density cell design for extremely low $R_{DS(ON)}$

◆ SOT23 Package

Applications

✧ Portable Media Players/MP3 players

✧ Cellular and Smart mobile phone

✧ LCD

✧ DSC Sensor

✧ Wireless Card

Order Information

LPM3413 ☐ ☐ ☐

└── F: Pb-Free

└── Package Type
B3: SOT23

Pin Configurations

SOT23L(Top View)

Marking Information

Device	Marking	Package	Shipping
LPM3413	A1XX	SOT23	3K/REEL

Pin Description

Pin Number	Pin Description
1	Gate Pin
2	Source Pin
3	Drain Pin

Absolute Maximum Ratings

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	-3	A
	T_A=70°C		-2.0	
Pulsed Drain Current		I_{DM}	-10	
Power Dissipation	T_A=25°C	P_D	1.4	W
	T_A=70°C		0.9	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal resistance ratings

Parameter	Symbol	Typ.	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$	125	°C/W

Electrical Characteristics

| Symbol	Parameter	Condition	Min	Typ.	Max	Units
STATIC PARAMETERS						
BVDSS	Drain-Source Breakdown Voltage	I_D=-250μA, V_{GS}=0V	-20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-20V,V_{GS}=0V,T_J=25°C			-1	uA
		T_J=55°C			-5	
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}=±12V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=VGS ,I_D=-250μA	-0.3	-0.55	-1	V
$I_{D(ON)}$	On state drain current	V_{GS}=-4.5V		-3		A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-4.5V, I_D=-3A		81	95	mΩ
		V_{GS}=-2.5V, I_D=-2.0A		108	130	mΩ
		V_{GS}=-1.8V, I_D=-1A		146	190	mΩ
g_{FS}	Forward Trans-conductance	V_{GS}=-4.5V, I_D=-3A		10		S
V_{SD}	Diode Forward Voltage	I_S=1A,V_{GS}=0V		-0.7	-1	V
DYNAMIC PARAMETERS						
Ciss	Input Capacitance	V_{GS}=0V, V_{DS}=-10V, f=1MHz	500	540	660	pF
Coss	Output Capacitance		50	75	100	pF
Crss	Reverse Transfer Capacitance		30	50	70	pF
SWITCHING PARAMETERS						
Qg	Total Gate Charge	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-3A	4.8	6	7	nC
Qgs	Gate Source Charge		1	1.3	1.6	nC
Qgd	Gate Drain Charge		1	1.8	2.5	nC
$t_{D(on)}$	Turn-On DelayTime	V_{GS}=-4.5V, V_{DS}=-10V, R_L=3.3 Ω, R_{GEN}=3Ω		10		nS
tr	Turn-On Rise Time			12.5		
$t_{D(off)}$	Turn-Off DelayTime			44		
tf	Turn-Off Fall Time			22		
trr	Body Diode Reverse Recovery Time	I_F=-3A, dI/dt=100A/μs		21		ns
Qrr	Body Diode Reverse Recovery Charge	I_F=-3A, dI/dt=100A/μs		7.5		nC

Packaging Information

SOT-23 STANDARD PACKAGE OUTLINE
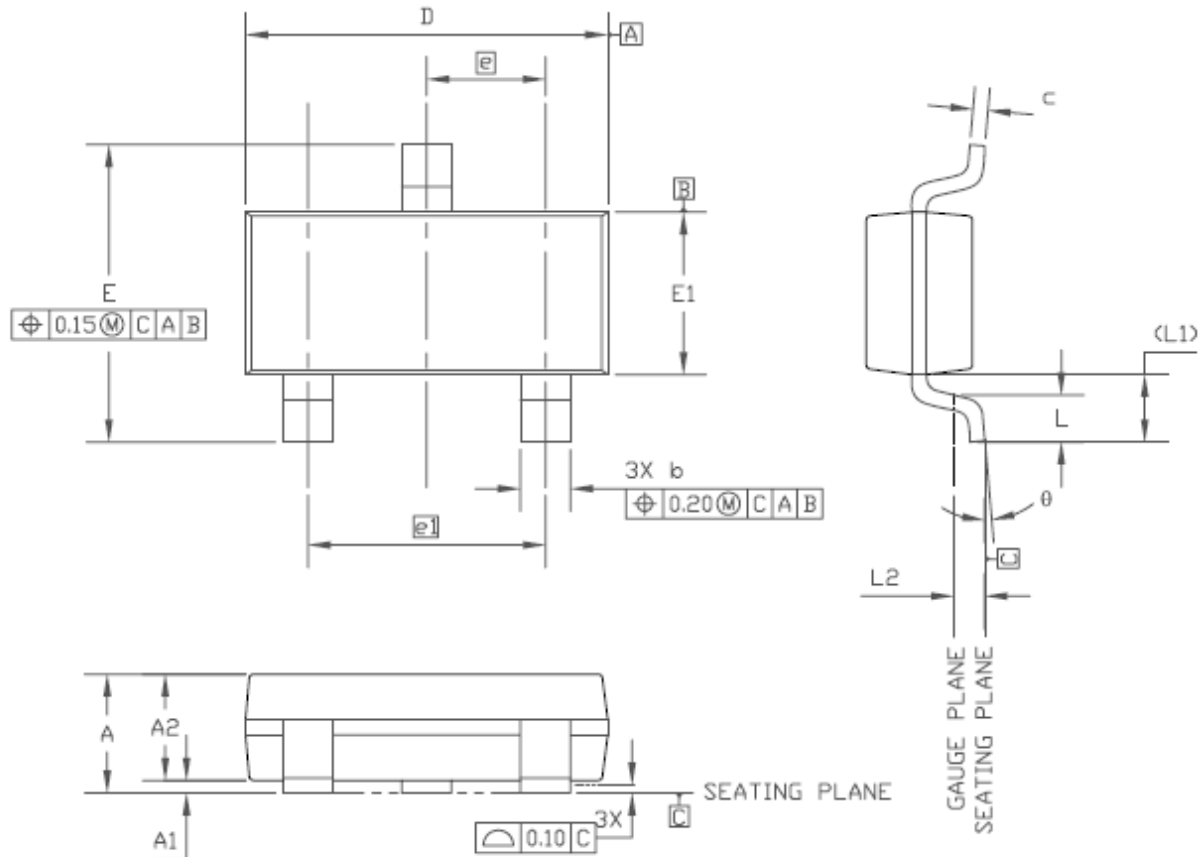
RECOMMENDED LAND PATTERN
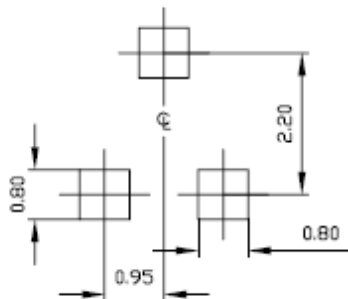
UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.75	—	1.17	0.030	—	0.046
A1	0.05	—	0.15	0.002	—	0.006
A2	0.70	0.85	1.02	0.028	0.033	0.040
b	0.30	—	0.50	0.012	—	0.020
c	0.08	—	0.20	0.003	—	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	2.10	—	2.64	0.083	—	0.104
E1	1.20	1.30	1.40	0.047	0.051	0.055
e	0.95 BSC			0.037 BSC		
e1	1.90 BSC			0.075 BSC		
L	0.40	0.50	0.60	0.016	0.020	0.024
L1	0.54 REF			0.021REF		
L2	0.25			0.010		
θ1	0°	—	8°	0°	—	8°

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by LOWPOWER *manufacturer:*

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3