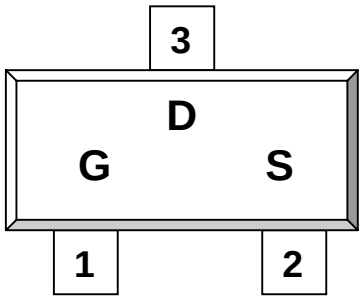
N Channel Enchancement Mode MOSFET 3402

4.0A

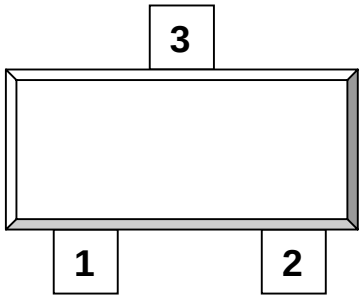
DESCRIPTION

The 3402 is the N-Channel logic enhancement mode power field effect transistor 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 such as cellular phone and notebook computer power management and other batter powered circuits, and low in-line power loss are needed in a very small outine surface mount package.

PIN CONFIGURATION
SOT-23-3L



1.Gate 2.Source 3.Drain



FEATURE

- 30V/4.0A, $R_{DS(ON)}$ <58m-ohm @VGS = 10V
- 30V/2.3A, $R_{DS(ON)}$ <65m-ohm @VGS = 4.5V
- 30V/1.5A, $R_{DS(ON)}$ <105m-ohm @VGS = 2.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

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ABSOLUTE MAXIMUM RATINGS (Ta = 25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	+/-12	V
Continuous Drain Current (TJ=150℃)	TA=25℃ TA=70℃	I_D	4.0 2.8	A
Pulsed Drain Current		I_{DM}	10	A
Continuous Source Current (Diode Conduction)		I_S	1.25	A
Power Dissipation	TA=25℃ TA=70℃	P_D	1.25 0.8	W
Operation Junction Temperature		T_J	150	℃
Storgae Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	100	℃/W

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ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

Parameter	Symbol	Condition	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	0.8		1.6	V
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=55℃			10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≧4.5V,V_{GS}=10V V_{DS}≧4.5V,V_{GS}=4.5V	6 4			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=4.0A V_{GS}=4.5V,I_D=2.3A V_{GS}=2.5V,I_D=1.5A		0.048 0.053 0.080	0.058 0.065 0.105	Ω
Forward Transconductance	g_{fs}	V_{DS}=4.5V,I_D=2.8A		4.6		S
Diode Forward Voltage	V_{SD}	I_S=-1.25A,V_{GS}=0V		0.82	1.2	V
Dynamic						
Total Gate Charge	Qg	V_{DS}=15V,V_{GS}=4.5V I_D≡2.0A		4.2	6	nC
Gate-Source Charge	Qgs			0.6		
Gate-Drain Charge	Qgd			1.5		
Input Capacitance	Ciss	V_{DS}=15V,V_{GS}=0V F=1MHz		350		pF
Output Capacitance	Coss			55		
Reverse Transfer Capacitance	Crss			41		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=10Ω V_{GEN}=4.5V,R_G=6Ω		2.5		nS
	t_r			2.5		
Turn-Off Time	$t_{d(off)}$			20		
	t_f			4		