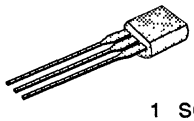
ND2406 SERIES

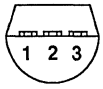
Siliconix incorporated

N-Channel Depletion-Mode MOS Transistors

TO-92



BOTTOM VIEW



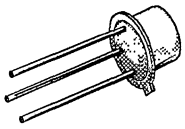
1 SOURCE
2 GATE
3 DRAIN

PRODUCT SUMMARY

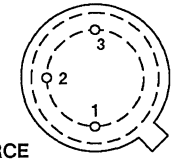
PART NUMBER	$V_{(BR)DSV}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
ND2406L	240	6	0.23	TO-92
ND2406B	240	6	0.57	TO-205AF

Performance Curves: **VDDV24** (See Section 7)

TO-205AF



BOTTOM VIEW



1 SOURCE
2 GATE
3 DRAIN & CASE

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	ND2406L	ND2406B[2]	UNITS
Drain-Source Voltage		V_{DS}	240	240	V
Gate-Source Voltage		V_{GS}	±30	±20	
Continuous Drain Current	T_A = 25°C	I_D	0.23	0.57	A
	T_A = 100°C		0.14	0.36	
Pulsed Drain Current[1]		I_{DM}	0.90	1	
Power Dissipation	T_A = 25°C	P_D	0.80	5	W
	T_A = 100°C		0.32	2	
Operating Junction and Storage Temperature		T_j, T_{stg}	−55 to 150		°C
Lead Temperature (1/16" from case for 10 seconds)		T_L	300		

THERMAL RESISTANCE

THERMAL RESISTANCE	SYMBOL	ND2406L	ND2406B	UNITS
Junction-to-Ambient	R_{thJA}	156	125	°C/W

[1]Pulse width limited by maximum junction temperature
[2]Reference case for all temperature testing

ELECTRICAL CHARACTERISTICS[1]			LIMITS					
				ND2406L		ND2406B		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[2]	MIN	MAX	MIN	MAX	UNIT
STATIC								
Drain-Source Breakdown Voltage	$V_{(BR)DSV}$	V_{GS} = -9 V, I_D = 10 µA	260	240		240		V
Gate-Source Cutoff Voltage	$V_{GS(OFF)}$	V_{DS} = 5 V, I_D = 10 µA	-2.8	-1.5	-4.5	-1.5	-4.5	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V	±1		±10		±10	nA
		V_{DS} = 0 V, V_{GS} = ±20 V, T_J = 125°C	±5		±50		±50	nA
Drain Cutoff Current	$I_{D(OFF)}$	V_{DS} = 180 V, V_{GS} = -9 V	0.04		1		1	µA
		V_{DS} = 180 V, V_{GS} = -9 V, T_J = 125°C	15		200		200	µA
Drain Saturation Current[3]	I_{DSS}	V_{DS} = 10 V, V_{GS} = 0 V	640	40		40		mA
Drain-Source On-Resistance[3]	$r_{DS(ON)}$	V_{GS} = 2 V, I_D = 30 mA	3					Ω
		V_{GS} = 0 V, I_D = 30 mA	3.5		6		6	Ω
		V_{GS} = 0 V, I_D = 30 mA, T_J = 125°C	7		15		15	Ω
Forward Transconductance[3]	g_{FS}	V_{DS} = 10 V, I_D = 30 mA	110					mS
Common Source Output Conductance[3]	g_{OS}	V_{DS} = 10 V, I_D = 30 mA	70					µS
DYNAMIC								
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = -5 V, f = 1 MHz	70		120		120	pF
Output Capacitance	C_{oss}	V_{DS} = 25 V, V_{GS} = -5 V, f = 1 MHz	20		30		30	pF
Reverse Transfer Capacitance	C_{rss}	V_{DS} = 25 V, V_{GS} = -5 V, f = 1 MHz	10		15		15	pF
SWITCHING								
Turn-On Time	$t_{d(ON)}$	V_{DD} = 25 V, R_L = 830 Ω, I_D = 30 mA, V_{GEN} = -5 V, R_G = 25 Ω (Switching time is essentially independent of operating temperature)	15					ns
	t_r		75					ns
Turn-Off Time	$t_{d(OFF)}$		40					ns
	t_f		100					ns

NOTES: 1. T_A = 25 °C unless otherwise noted, T_C = 25 °C for ND2406B.
2. For design aid only, not subject to production testing.
3. Pulse test; PW = 300 µs, duty cycle ≤ 2%.