VP2410 SERIES

Siliconix incorporated

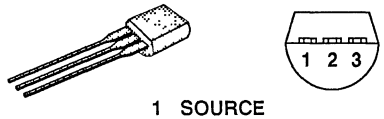
P-Channel Enhancement-Mode MOS Transistors

PRODUCT SUMMARY

PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VP2410L	–240	10	–0.18	TO-92
VP2410B	–240	10	–0.17	TO-205AF

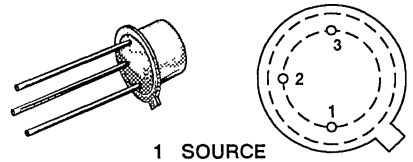
Performance Curves: **VPDV24** (See Section 7)

TO-92 BOTTOM VIEW



1 SOURCE
2 GATE
3 DRAIN

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	VP2410L	VP2410B	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	–0.18	–0.17	A
	T_A = 100°C		–0.11	–0.10	
Pulsed Drain Current[1]		I_{DM}	–0.72	–0.70	
Power Dissipation	T_A = 25°C	P_D	0.80	0.73	W
	T_A = 100°C		0.32	0.22	
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	VP2410L	VP2410B	UNITS
Junction-to-Ambient	R_{thJA}	156	170	°C/W

[1]Pulse width limited by maximum junction temperature

ELECTRICAL CHARACTERISTICS[1]			LIMITS			
				VP2410		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP [2]	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = -5 µA	-255	-240		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -2.5 mA	-2.25	-0.8	-2.5	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V	±1		±10	nA
		T_J = 125°C	±5		±50	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -180 V, V_{GS} = 0 V	-0.001		-1.0	µA
		T_J = 125°C	-0.40		-100	µA
On-State Drain Current [3]	$I_{D(ON)}$	V_{DS} = -10 V, V_{GS} = -4.5 V	-300	-150		mA
Drain-Source On-Resistance [3]	$r_{DS(ON)}$	V_{GS} = -10 V, I_D = -100 mA	7			Ω
		V_{GS} = -4.5 V, I_D = -100 mA	8.5		10	Ω
		T_J = 125°C	15.5		20	Ω
Forward Transconductance [3]	g_{FS}	V_{DS} = -10 V, I_D = -100 mA	175	125		mS
Common Source Output Conductance [3]	g_{OS}	V_{DS} = -10 V, I_D = -50 mA	125			
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = -25 V, V_{GS} = 0 V, f = 1 MHz	65		95	pF
Output Capacitance	C_{oss}		20		30	pF
Reverse Transfer Capacitance	C_{rss}		8		15	pF
SWITCHING						
Turn-On Time	$t_{d(ON)}$	V_{DD} = -25 V, R_L = 250 Ω, I_D = -100 mA, V_{GEN} = -10 V, R_G = 25 Ω (Switching time is essentially independent of operating temperature)	7		15	ns
	t_r		18		30	ns
Turn-Off Time	$t_{d(OFF)}$		45		70	ns
	t_f		45		60	ns

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

6