VQ2000 SERIES

Siliconix incorporated

T-43-25

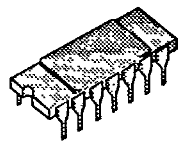
P-Channel Enchancement-Mode MOS Transistor Arrays

PRODUCT SUMMARY

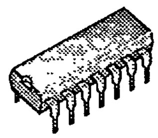
PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VQ2000J	-60	10	-0.24	Plastic
VQ2000P	-60	10	-0.24	Side Braze

Performance Curves: VPDS06 (See Section 7)

14-PIN DIP SIDE BRAZE

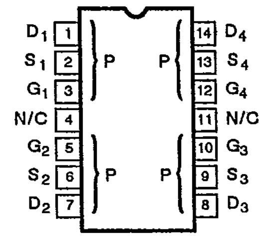


14-PIN PLASTIC



TOP VIEW

Dual-In-Line Package



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

PARAMETERS/TEST CONDITIONS		SYMBOL	VQ2000J	VQ2000P	UNITS
Drain-Source Voltage		V_{DS}	-60	-60	V
Gate-Source Voltage		V_{GS}	±30	±20	
Continuous Drain Current	T_A = 25°C	I_D	-0.24	-0.24	A
	T_A = 100°C		-0.15	-0.15	
Pulsed Drain Current[1]		I_{DM}	±0.8	±0.8	
Power Dissipation - Single	T_A = 25°C	P_D	1.3	1.3	W
	T_A = 100°C		0.52	0.52	
Power Dissipation - Quad	T_A = 25°C		2	2	
	T_A = 100°C		0.8	0.8	
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	VQ2000J	VQ2000P	UNITS
Junction-to-Ambient - Single	R_{thJA}	96.2	96.2	°C/W
Junction-to-Ambient - Quad		62.5	62.5	

[1]Pulse width limited by maximum junction temperature

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ELECTRICAL CHARACTERISTICS[1]			LIMITS			
				VQ2000		
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[2]	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = −10 µA	−70	−60		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = −1 mA	−1.7	−1	−3	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} = −48 V, V_{GS} = 0 V	−0.02		−1	µA
		T_J = 125°C	−0.2		−200	µA
On-State Drain Current[3]	$I_{D(ON)}$	V_{DS} = −10 V, V_{GS} = −4.5 V	−80	−40		mA
Drain-Source On-Resistance[3]	$r_{DS(ON)}$	V_{GS} = −4.5 V, I_D = −25 mA	15		25	Ω
		V_{GS} = −10 V, I_D = −0.25 A	8		10	Ω
		T_J = 125°C	15		20	Ω
Forward Transconductance[3]	g_{FS}	V_{DS} = −10 V, I_D = −0.1 A	90	60		mS
Common Source Output Conductance[3]	g_{OS}	V_{DS} = −10 V, I_D = −0.1 A	400			µS
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = −25 V, V_{GS} = 0 V, f = 1 MHz	15		60	pF
Output Capacitance	C_{oss}		10		25	pF
Reverse Transfer Capacitance	C_{rss}		3		5	pF
SWITCHING						
Turn-On Time	$t_{d(ON)}$	V_{DD} = −25 V, R_L = 133 Ω, I_D = −0.18 A, V_{GEN} = −10 V, R_G = 25 Ω (Switching time is essentially independent of operating temperature)	6		15	ns
	t_r		10		20	ns
Turn-Off Time	$t_{d(OFF)}$		7		15	ns
	t_f		8		20	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%.

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