VQ1006 SERIES

Siliconix incorporated

T-43-25

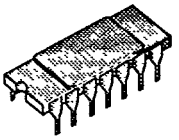
N-Channel Enhancement-Mode MOS Transistor Arrays

PRODUCT SUMMARY

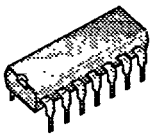
PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VQ1006J	90	4.5	0.40	Plastic
VQ1006P	90	4.5	0.40	Side Braze

Performance Curves: VNDQ09 (See Section 7)

14-PIN DIP SIDE BRAZE

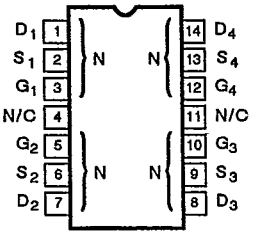


14-PIN PLASTIC



TOP VIEW

Dual-In-Line Package



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

PARAMETERS/TEST CONDITIONS		SYMBOL	VQ1006J	VQ1006P	UNITS
Drain-Source Voltage		V_{DS}	90	90	V
Gate-Source Voltage		V_{GS}	±30	±20	
Continuous Drain Current	T_A = 25°C	I_D	0.40	0.40	A
	T_A = 100°C		0.23	0.23	
Pulsed Drain Current[1]		I_{DM}	±2	±2	
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	VQ1006J	VQ1006P	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			
			VQ1006			
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	120	90		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1 mA	1.6	0.8	2.5	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±15 V	±1		±100	nA
		V_{DS} = 0 V, V_{GS} = ±15 V, T_J = 125°C	±5		±500	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 90 V, V_{GS} = 0 V	0.03		1	µA
		V_{DS} = 72 V, V_{GS} = 0 V, T_J = 125°C	0.3		500	µA
On-State Drain Current[3]	$I_{D(ON)}$	V_{DS} = 10 V, V_{GS} = 10 V	1.8	1.5		A
Drain-Source On-Resistance[3]	$r_{DS(ON)}$	V_{GS} = 5 V, I_D = 0.3 A	4.7		5	Ω
		V_{GS} = 10 V, I_D = 1 A	4.1		4.5	Ω
		V_{GS} = 10 V, I_D = 1 A, [4] T_J = 125°C	7.7		8.6	Ω
Forward Transconductance[3]	g_{FS}	V_{DS} = 10 V, I_D = 0.5 A	350	170		mS
Common Source Output Conductance[3]	g_{OS}	V_{DS} = 10 V, I_D = 0.1 A	225			µS
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MHz	35		60	pF
Output Capacitance	C_{oss}		15		50	pF
Reverse Transfer Capacitance	C_{rss}		2		10	pF
SWITCHING						
Turn-On Time	t_{ON}	V_{DD} = 25 V, R_L = 23 Ω, I_D = 1 A, V_{GEN} = 10 V, R_G = 25 Ω (Switching time is essentially independent of operating temperature)	6		10	ns
Turn-Off Time	t_{OFF}		8		10	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%.
4. This parameter has been revised from previous data sheet.

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