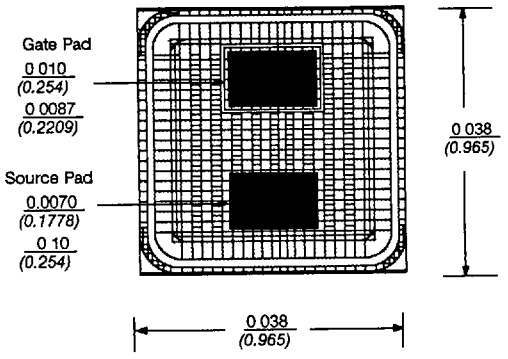
Siliconix incorporated

VPDQ1 DIE
P-Channel Enhancement-Mode MOS Transistor

T-37-25

VPDQ1CHP*
BSS92 TP2020L TP1220L VP2020L
*Meets or exceeds specification for all part numbers listed below



Back of Chip is Drain

Nominal Thickness
0.009 inches
0.228 mm

For additional design information please consult the typical performance curves VPDQ20.

DESIGNED FOR:

- Switching
- Amplification

FEATURES

- High Breakdown > 200 V
- Low $r_{DS(ON)}$ < 20 Ω

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-200	V
Gate-Source Voltage		V_{GS}	±30	
Power Dissipation	T_A = 25°C	P_D	0.80	W
	T_A = 100°C		0.32	
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

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SPECIFICATIONS[a]			LIMITS			
PARAMETER	SYMBOL	TEST CONDITIONS	TYP[b]	MIN	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = −10 µA, V_{GS} = 0 V	−220	−200		V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = −1 mA	−1.9	−1.0	−2.4	
Gate-Body Leakage[c]	I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0 V				nA
		T_J = 125°C				
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 0.8 x $V_{(BR)DSS}$, V_{GS} = 0 V				µA
		T_J = 125°C				
On-State Drain Current	$I_{D(ON)}$	V_{DS} = −10 V, V_{GS} = −4.5 V	−270	−100		mA
Drain-Source On-Resistance[c]	$r_{DS(ON)}$	V_{GS} = −4.5 V, I_D = −50 mA	15		20	Ω
		T_J = 125°C	27			
		V_{GS} = −10 V, I_D = −100 mA	15		20	
Forward Transconductance[c]	g_{FS}	V_{DS} = −10 V, I_D = −100 mA	150			mS
Common Source Output Conductance[c]	g_{OS}		300			µS
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = −25 V, V_{GS} = 0 V, f = 1 MHz	30			pF
Output Capacitance	C_{oss}		10			
Reverse Transfer Capacitance	C_{rss}		2			
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	6			ns
	t_r		8			
Turn-Off Time	$t_{d(OFF)}$	(Switching time is essentially independent of operating temperature)	18			
	t_f		17			

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