



VDDQ SERIES DIE

N-Channel Depletion-Mode MOS Transistors

T-35-25

VDDQ1CHP*	VDDQ2CHP*
ND2012L	ND2020L
*Meets or exceeds specification for all part numbers listed below	

For additional design information please consult the typical performance curves VDDQ20.

DESIGNED FOR:

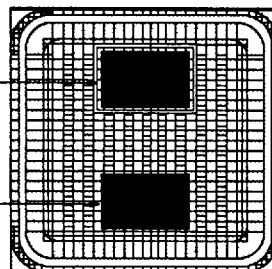
- Switching
- Amplification

FEATURES

- High Breakdown Voltage > 200 V
- Low $r_{DS(ON)} < 10 \Omega$

Gate Pad
 $\frac{0.010}{(0.254)}$
 $\frac{0.0087}{(0.2209)}$

Source Pad
 $\frac{0.0070}{(0.1778)}$
 $\frac{0.010}{(0.254)}$



$\frac{0.038}{(0.965)}$

$\frac{0.038}{(0.965)}$

Back of Chip is Drain

Nominal Thickness
 0.009 inches
 0.226 mm

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS		UNITS
		VDDQ1CHP	VDDQ2CHP	
Drain-Source Voltage	V_{DS}	200	200	V
Gate-Source Voltage	V_{GS}	± 30	± 20	
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150		$^\circ\text{C}$

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SPECIFICATIONS ^a			LIMITS					
PARAMETER	SYMBOL	TEST CONDITIONS	TYP ^b	VDDQ1CHP		VDDQ2CHP		UNIT
				MIN	MAX	MIN	MAX	
STATIC								
Drain-Source Breakdown Voltage	V _{(BR)DSV}	I _D = 10 μA , V _{GS} = -8 V	220	200		200		V
Gate-Source Cutoff Voltage	V _{GS(OFF)}	V _{DS} = 5 V, I _D = 10 μA		-1.5	-4	-0.5	-2.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V	±1					nA
		T _J = 125°C	±5					
Drain Cutoff Current	I _{D(OFF)}	V _{DS} = 160 V, V _{GS} = -8 V	0.2					μA
		T _J = 125°C	5					
Drain-Saturation Current ^c	I _{DSS}	V _{DS} = 10 V, V _{GS} = 0 V	400					mA
Drain-Source On-Resistance ^c	r _{DS(ON)}	V _{GS} = 2 V, I _D = 20 mA	9					Ω
		V _{GS} = 0 V, I _D = 20 mA	10		12		20	
		T _J = 125°C	18					
Forward Transconductance ^c	g _{FS}	V _{DS} = 7.5 V, I _D = 20 mA	55					mS
Common Source Output Conductance ^c	g _{OS}		75					μS
DYNAMIC								
Input Capacitance	C _{iss}	V _{DS} = 25 V, V _{GS} = -5 V f = 1 MHz	35					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 = 1250 Ω I _D = 20 mA V _{GEN} = -5 V R _G = 25 Ω	20					nS
	t _r		20					
Turn-Off Time	t _{d(OFF)}	(Switching time is essentially independent of operating temperature)	10					
	t _f		10					

NOTES:

a. $T_A = 25^\circ C$ unless otherwise noted.

b. For design aid only, not subject to production testing.

c. Pulse test; $PW = \leq 300 \mu S$, duty cycle $\leq 2\%$.