

VN0605T

N-Channel Enhancement-Mode MOS Transistor



VN0605T

FEATURES

- Low $r_{DS(on)}$ $<5\Omega$
- Low cost

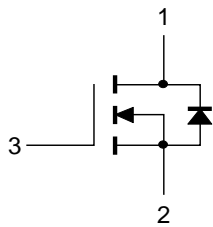
APPLICATIONS

- Switching
- Amplification

ORDERING INFORMATION

Part	Package	Temperature Range
VN0605T	Surface Mount SOT-23	-55°C to +150°C
For sorted chips in carriers see 2N7000		

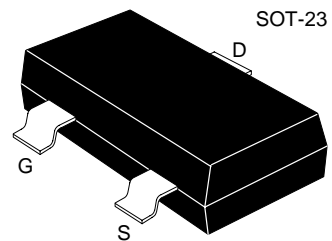
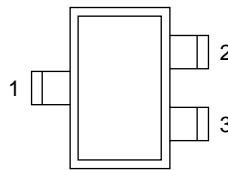
PIN CONNECTIONS



1 DRAIN
2 SOURCE
3 GATE

CD5

TOP VIEW



PRODUCT MARKING

VN0605T	V05
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ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETERS/TEST CONDITIONS	LIMITS	UNITS	
V_{DS}	Drain-Source Voltage	60	V	
V_{GS}	Gate-Source Voltage	± 30		
I_D	Continuous Drain Current	$T_A = 25^\circ\text{C}$	A	
		$T_A = 100^\circ\text{C}$		0.11
I_{DM}	Pulsed Drain Current ¹	0.72	°C	
P_D	Power Dissipation	$T_A = 25^\circ\text{C}$		0.36
		$T_A = 100^\circ\text{C}$		0.14
T_J	Operating Junction Temperature Range	-55 to 150		
T_{stg}	Storage Temperature Range	-55 to 150		
T_L	Lead Temperature (1/16" from case for 10 sec.)	300		

THERMAL RESISTANCE RATINGS

SYMBOL	THERMAL RESISTANCE	LIMITS	UNITS
R_{thJA}	Junction-to-Ambient	350	K/W

¹Pulse width limited by maximum junction temperature.

SPECIFICATIONS ^a		LIMITS				
SYMBOL	PARAMETER	TYP ^b	MIN	MAX	UNIT	TEST CONDITIONS
STATIC						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	70	60		V	I _D = 10μA, V _{GS} = 0V
V _{GS(th)}	Gate-Threshold Voltage	2.3	0.8	3.0		V _{DS} = V _{GS} , I _D = 1mA
I _{GSS}	Gate-Body Leakage			±100	nA	V _{GS} = ±20V, V _{DS} = 0V T _J = 125°C
				±500		
I _{DSS}	Zero Gate Voltage Drain Current			1	μA	V _{DS} = 50V, V _{GS} = 0V T _J = 125°C
				500		
I _{D(ON)}	On-State Drain Current ^c	700	500		mA	V _{DS} = 10V, V _{GS} = 10V
r _{DS(ON)}	Drain-Source On-Resistance ^c	4.5		7.5	Ω	V _{GS} = 4.5V, I _D = 50mA
		3		5		V _{GS} = 10V, I _D = 0.5A
		5.5		10		T _J = 125°C
g _{FS}	Forward Transconductance ^c	180	80		mS	V _{DS} = 10V, I _D = 0.2A
g _{OS}	Common Source Output Conductance ^c	500			μS	V _{DS} = 50V, I _D = 50mA
DYNAMIC						
C _{iss}	Input Capacitance	16		60	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz
C _{oss}	Output Capacitance	11		25		
C _{rss}	Reverse Transfer Capacitance	2		5		
SWITCHING						
t _{ON}	Turn-On Time	7		20	ns	V _{DD} = 30V, R _L = 150Ω, I _D = 0.2A V _{GEN} = 10V, R _G = 25Ω (Switching time is essentially independent of operating temperature)
t _{OFF}	Turn-Off Time	11		20		

Notes:

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