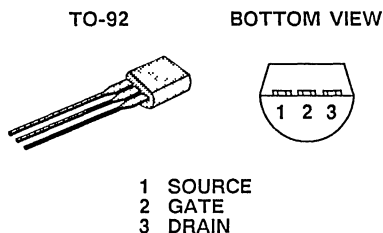
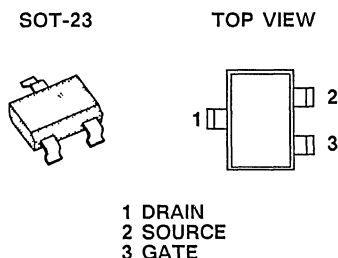


PRODUCT SUMMARY

PART NUMBER	$V_{(BR)DSS}$ (V)	$r_{DS(ON)}$ (Ω)	I_D (A)	PACKAGE
VN0603L	60	3.5	0.30	TO-92
VN0603T	60	3.5	0.22	SOT-23



Performance Curves: VNDS06 (See Section 7)



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

PARAMETERS/TEST CONDITIONS		SYMBOL	VN0603L	VN0603T	UNITS
Drain-Source Voltage		V _{DS}	60	60	V
Gate-Source Voltage		V _{GS}	±30	±30	
Continuous Drain Current	T _A = 25°C	I _D	0.30	0.22	A
	T _A = 100°C		0.21	0.14	
Pulsed Drain Current ¹		I _{DM}	1	0.8	
Power Dissipation	T _A = 25°C	P _D	0.8	0.36	W
	T _A = 100°C		0.32	0.14	
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	VN0603L	VN0603T	UNITS
Junction-to-Ambient	R_{thJA}	156	350	$^\circ\text{C/W}$

¹Pulse width limited by maximum junction temperature

VN0603 SERIES



ELECTRICAL CHARACTERISTICS ¹				LIMITS				
PARAMETER	SYMBOL	TEST CONDITIONS	TYP ²	VN0603L		VN0603T		UNIT
				MIN	MAX	MIN	MAX	
STATIC								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 10 μA	70	60		60		V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	2.3	0.8	3	0.8	3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V	± 1		± 100		± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 48 V	0.02		1		1	μA
		V _{GS} = 0 V						
On-State Drain Current ³	I _{D(ON)}	V _{DS} = 10 V, V _{GS} = 10 V	1000	750		500		mA
Drain-Source On-Resistance ³	r _{DS(ON)}	V _{GS} = 4.5 V, I _D = 50 mA	4.5		7.5		7.5	Ω
		V _{GS} = 10 V	2.5		3.5		3.5	
		I _D = 0.2 A	4.5		7		7	
Forward Transconductance ³	g _{FS}	V _{DS} = 10 V, I _D = 0.5 A VN0603L	230	100		100		mS
		V _{DS} = 10 V, I _D = 0.5 A VN0603T	230	100		100		
Common Source Output Conductance ³	g _{OS}	V _{DS} = 10 V, I _D = 50 mA	500					μS
DYNAMIC								
Input Capacitance	C _{iss}	V _{DS} = 25 V V _{GS} = 0 V f = 1 MHz	16		60		60	pF
Output Capacitance	C _{oss}		11		40		40	
Reverse Transfer Capacitance	C _{rss}		2		10		10	
SWITCHING								
Turn-On Time	t _{ON}	V _{DD} = 15 V, R _L = 23 Ω I _D = 0.2 A, V _{GEN} = 10 V R _G = 25 Ω	10		15		15	ns
Turn-Off Time	t _{OFF}	(Switching time is essentially independent of operating temperature)	10		15		15	

- NOTES: 1. $T_A = 25^\circ\text{C}$ unless otherwise noted.
2. For design aid only, not subject to production testing.
3. Pulse test; $PW = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.