SOT23 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

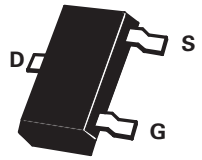
ZVN3306F

ISSUE 3 – JANUARY 1996

FEATURES

* $R_{DS(on)}$= 5Ω
* 60 Volt V_{DS}

COMPLEMENTARY TYPE - ZVP3306F
PARTMARKING DETAIL - MC



SOT23

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	60	V
Continuous Drain Current at T_{amb}=25°C	I_D	150	mA
Pulsed Drain Current	I_{DM}	3	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation at T_{amb}=25°C	P_{tot}	330	mW
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

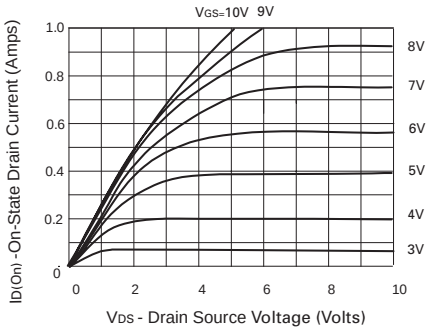
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	BV_{DSS}	60		V	I_D=1mA, V_{GS}=0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.8	2.4	V	I_D=1mA, V_{DS}= V_{GS}
Gate-Body Leakage	I_{GSS}		20	nA	V_{GS}=± 20V, V_{DS}=0V
Zero Gate Voltage Drain Current	I_{DSS}		0.5 50	µA µA	V_{DS}=60V, V_{GS}=0V V_{DS}=48V, V_{GS}=0V, T=125°C(2)
On-State Drain Current(1)	$I_{D(on)}$	750		mA	V_{DS}=18V, V_{GS}=10V
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$		5	Ω	V_{GS}=10V, I_D=500mA
Forward Transconductance (1)(2)	g_{fs}	150		mS	V_{DS}=18V, I_D=500mA
Input Capacitance (2)	C_{iss}		35	pF	V_{DS}=18V, V_{GS}=0V, f=1MHz
Common Source Output Capacitance (2)	C_{oss}		25	pF	
Reverse Transfer Capacitance (2)	C_{rss}		8	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$	3 typ	5	ns	V_{DD}≈18V, I_D=500mA
Rise Time (2)(3)	t_r	4 typ	7	ns	
Turn-Off Delay Time (2)(3)	$t_{d(off)}$	4 typ	6	ns	
Fall Time (2)(3)	t_f	5 typ	8	ns	

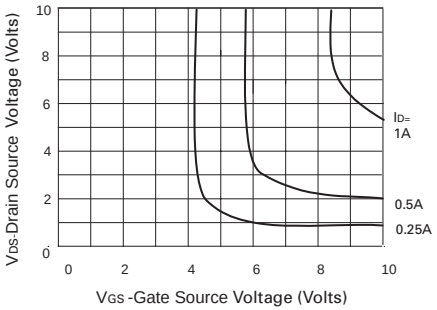
(1) Measured under pulsed conditions. Width=300µs. Duty cycle ≤2% (2) Sample test.
(3) Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator
Spice parameter data is available upon request for this device

ZVN3306F

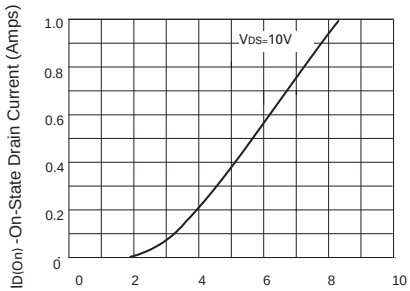
TYPICAL CHARACTERISTICS



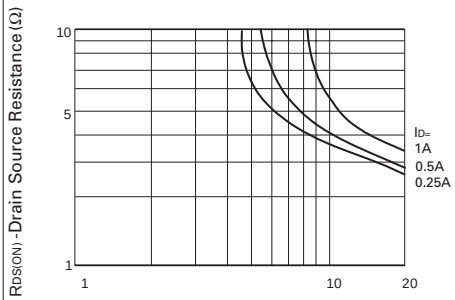
Saturation Characteristics



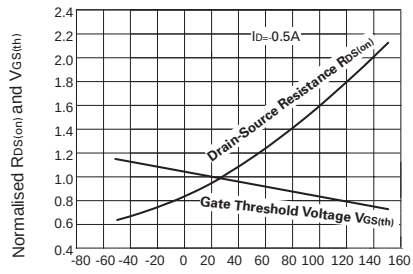
Voltage Saturation Characteristics



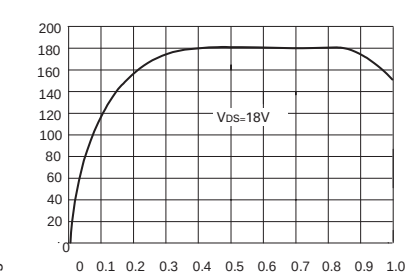
Transfer Characteristics



On-resistance vs gate-source voltage

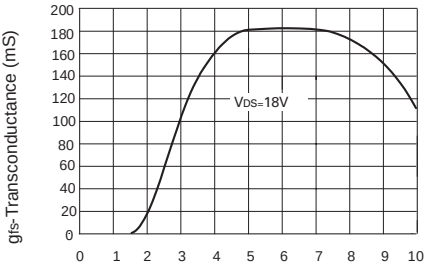


Normalised $R_{DS(on)}$ and $V_{GS(th)}$ vs Temperature

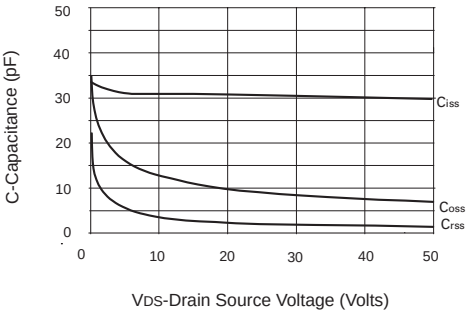


Transconductance v drain current

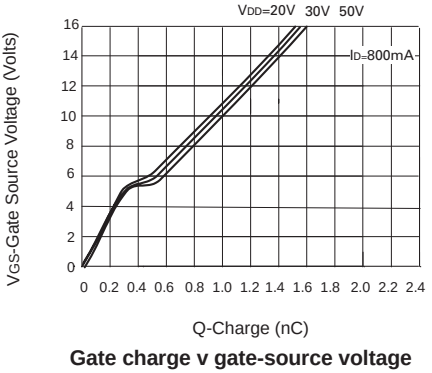
TYPICAL CHARACTERISTICS



Transconductance v gate-source voltage



Capacitance v drain-source voltage



Gate charge v gate-source voltage