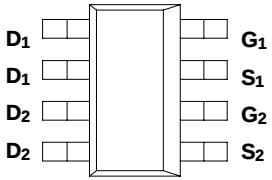
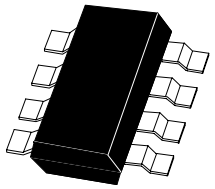
SM-8 DUAL N-CHANNEL ENHANCEMENT MODE MOSFETS

ISSUE 1 - NOVEMBER 1995

ZDM4306N



PARTMARKING DETAIL – M4306N



SM-8
(8 LEAD SOT223)

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	60	V
Continuous Drain Current at T_{amb}=25°C	I_D	2	A
Pulsed Drain Current	I_{DM}	15	A
Gate-Source Voltage	V_{GS}	± 20	V
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	VALUE	UNIT
Total Power Dissipation at T_{amb} = 25°C* Any single die "on" Both die "on" equally	P_{tot}	 2.5 3.0	 W W
Derate above 25°C* Any single die "on" Both die "on" equally		 20 24	 mW/ °C mW/ °C
Thermal Resistance - Junction to Ambient* Any single die "on" Both die "on" equally		 50.0 41.6	 °C/ W °C/ W

* The power which can be dissipated assuming the device is mounted in a typical manner on a PCB with copper equal to 2 inches square.

Note:

This data is derived from development material and does not necessarily mean that the device will go into production

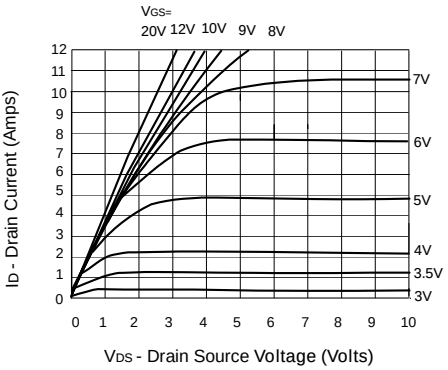
ZDM4306N

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

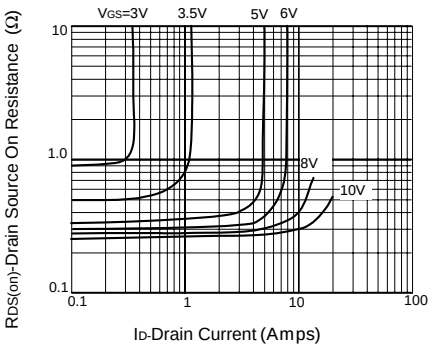
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	BV_{DSS}	60			V	I_D=1mA, V_{GS}=0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	1.3		3	V	I_D=1mA, V_{DS}= V_{GS}
Gate-Body Leakage	I_{GSS}			100	nA	V_{GS}=± 20V, V_{DS}=0V
Zero Gate Voltage Drain Current	I_{DSS}			10 100	µA µA	V_{DS}=60V, V_{GS}=0 V_{DS}=48V, V_{GS}=0V, T=125°C(2)
On-State Drain Current(1)	$I_{D(on)}$	12			A	V_{DS}=10V, V_{GS}=10V
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$		0.22 0.32	0.33 0.45	Ω Ω	V_{GS}=10V,I_D=3A V_{GS}=5V, I_D=1.5A
Forward Transconductance (1)(2)	g_{fs}	700			mS	V_{DS}=25V,I_D=3A
Input Capacitance (2)	C_{iss}			350	pF	V_{DS}=25 V, V_{GS}=0V, f=1MHz
Common Source Output Capacitance (2)	C_{oss}			140	pF	
Reverse Transfer Capacitance (2)	C_{rss}			30	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$			8	ns	V_{DD}≈25V, V_{GEN}=10V, I_D=3A
Rise Time (2)(3)	t_r			25	ns	
Turn-Off Delay Time (2)(3)	$t_{d(off)}$			30	ns	
Fall Time (2)(3)	t_f			16	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

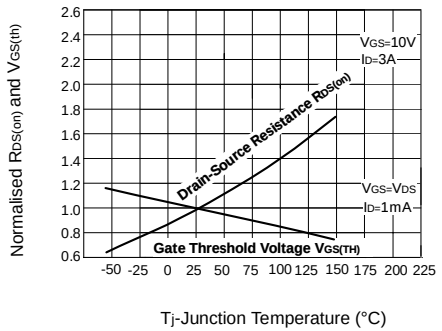
TYPICAL CHARACTERISTICS



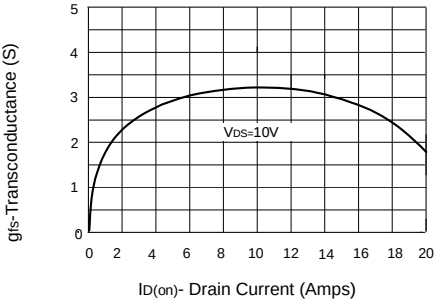
Saturation Characteristics



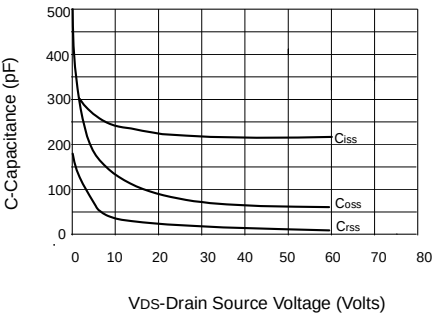
On-resistance v drain current



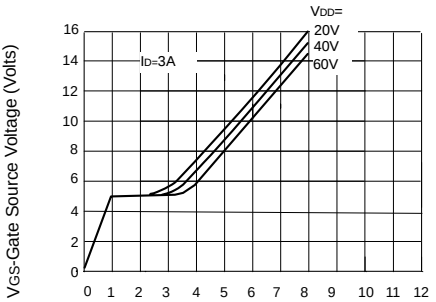
Normalised $R_{DS(on)}$ and $V_{GS(th)}$ v Temperature



Transconductance v drain current



Capacitance v drain-source voltage



Gate charge v gate-source voltage