

T-35-25

TOPAZ

SEMICONDUCTOR

SD217, SD219

N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FET

ORDERING INFORMATION

TO-206AF (TO-72) Package	SD217DE	SD219DE
Shorting Ring	SD217DE/R	SD219DE/R
Sorted Chips in Waffle Pack	SD217CHP	SD219CHP
Description	6.0 ohm, 25V V _{SB} = 15V min	6.0 ohm, 25V V _{SB} = 20V min

FEATURES

- CMOS Compatible Input
- Small Package, Standard Pin-Out
- TTL and CMOS Compatible Input
- Low Capacitance
- Peak Pulsed Current, 1 Amp min

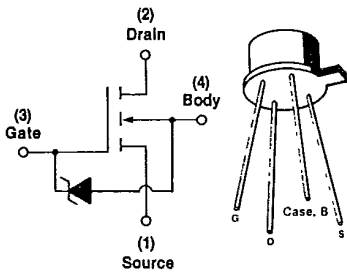
APPLICATIONS

- ± 10V Analog Switch, SD219DE
- ± 7.5 Analog Switch, SD217DE
- High Speed, Medium Power, Switch Drivers
- Sample and Hold and Track and Hold
- A-to-D and D-to-A Converters

ABSOLUTE MAXIMUM RATINGS (T_A = +25°C unless otherwise specified)

V _{DS} Drain-Source Voltage	..... +25V	I _D Continuous Drain Current (Note 1)	..... 160mA
V _{DB} Drain-Body Voltage		P _D Continuous Power Dissipation (Note 1)	
SD217	..... +22.5V	T _A = +25°C (Free Air)	..... 300mW
SD219	..... +25V	T _C = +25°C (Infinite Heat Sink)	..... 1.2W
V _{SD} Source-Drain Voltage		Power Derating Factors (Note 1)	
SD217	..... +15V	Free Air	..... 3.0mW/°C
SD219	..... +20V	Infinite Heat Sink	..... 12mW/°C
V _{SB} Source-Body Voltage		Thermal Resistance (Note 1)	
SD217	..... +22.5V	θ _{JA} Junction to Ambient	..... 333°C/W
SD219	..... +25V	θ _{JC} Junction to Case	..... 83°C/W
V _{GB} Gate-Body Voltage	..... +30V	T _{OP} Operating Junction	
V _{GS} Gate-Source Voltage	..... ±22.5V	Temperature Range	..... -55 to +125°C
V _{GD} Gate-Drain Voltage	..... ±22.5V	T _{STG} Storage Temperature Range	..... -55 to +150°C
I _D Peak Pulsed Drain Current	..... +1.0A	Note 1: Not applicable to chips. Final value depends on mounting.	

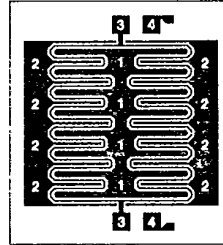
SCHEMATIC DIAGRAM



PACKAGE DIMENSIONS (TO-72) TO-206AF

(See Package 3)

CHIP CONFIGURATION



1—Drain 2—Source 3—Gate 4—Diode
Minimum bonding required. One Drain, One Source (left), One Source (right), One Gate. Bond Gate and Adjacent Diode to Common Point to Connect Protective Diode.
Size: .040 x .044 x .013 inch.
Body (Substrate) is backside contact.



SD217, SD219

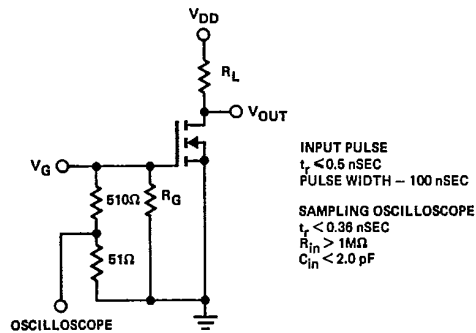
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ELECTRICAL CHARACTERISTICS (T_A = +25 °C unless otherwise specified)

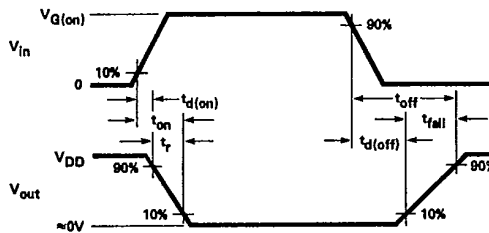
#	CHARACTERISTIC		MIN	TYP	MAX	UNITS	TEST CONDITIONS
1	BV _{DS}	Drain-Source Breakdown Voltage	25	30		V	I _D = 10μA, V _{GS} = V _{BS} = 0
2			15	20			I _D = 100nA, V _{GS} = V _{BS} = -5V
3	BV _{SD}	Source-Drain Breakdown Voltage	SD217: 15			V	I _S = 100nA, V _{GD} = V _{BD} = -5V
4			SD219: 20				
5	BV _{DB}	Drain-Body Breakdown Voltage	SD217: 22.5			V	I _D = 100nA, V _{GB} = 0, Source Open
6			SD219: 25				
7	BV _{SB}	Source-Body Breakdown Voltage	SD217: 22.5			V	I _S = 100nA, V _{GB} = 0, Drain Open
8			SD219: 25				
9	I _{D(off)}	Drain-Source OFF Leakage Current			100	nA	V _{DS} = 15V, V _{GS} = V _{BS} = -5V
10	I _{S(off)}	Source-Drain OFF Leakage Current			100		V _{SD} = 15V, V _{GD} = V _{BD} = -5V
11	I _{GB}	Gate-Body ON Leakage Current			10	μA	V _{GB} = 30V, V _{GS} = V _{GD} = 22.5V
12	V _{GS(th)}	Gate-Source Threshold Voltage	0.1		2.0	V	V _{DS} = V _{GS} , I _D = 10μA, V _{SB} = 0
13	I _{D(on)}	Drain-Source ON Current (Note 1)	1.0			A	V _{DS} = V _{GS} = 10V, V _{SB} = 0
14	r _{DS(on)}	Drain-Source ON Resistance (Note 1)			8.0	ohms	V _{GS} = 5.0V, I _D = 50mA, V _{SB} = 0
15					6.0		V _{GS} = 10V, I _D = 500mA, V _{SB} = 0
16					6.0		
17	g _{fs}	Common-Source (Note 1) Forward Transconductance	100			mmhos	V _{DS} = 15V, I _D = 200mA, V _{SB} = 0, F = 1KHz
18	C _(gs + gd + gb)	Gate Node Capacitance			30	pF	V _{DS} = 10V, V _{GS} = V _{BS} = -15V, f = 1MHz
19	C _(gd + db)	Drain-Node Capacitance			15		
20	C _(gs + sb)	Source Node Capacitance			40		
21	C _(dg)	Reverse Transfer Capacitance			5.0		
22	t _{on}	Turn ON Time		2.0	4.0			nS	V_{DD} = 10V, V_{G(on)} = 10V, R_{L} = 133Ω, R_{G} = 51Ω
23	t _{off}	Turn OFF Time		3.0	5.0		

Note 1: Pulse Test 80μSec, 1% Duty Cycle

SWITCHING TIMES TEST CIRCUIT



TEST WAVEFORMS

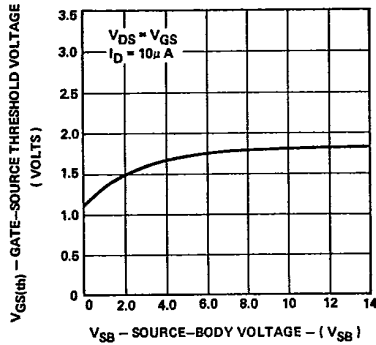




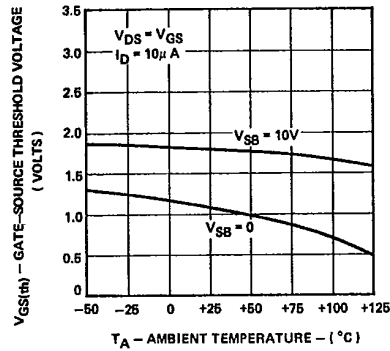
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SD217, SD219

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = +25^\circ\text{C}$ unless otherwise specified)

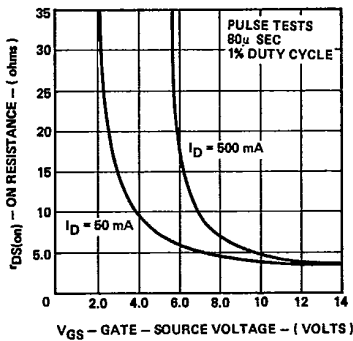
GATE-SOURCE THRESHOLD VOLTAGE
—VS—
SOURCE-BODY VOLTAGE



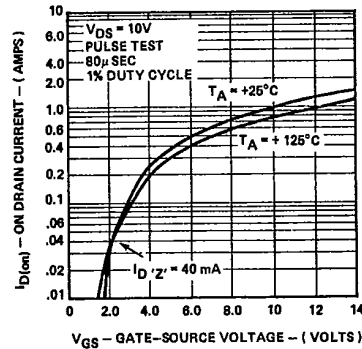
GATE-SOURCE THRESHOLD VOLTAGE
—VS—
TEMPERATURE



DRAIN-SOURCE ON RESISTANCE
—VS—
GATE-SOURCE VOLTAGE



ON DRAIN CURRENT
—VS—
GATE-SOURCE VOLTAGE



FORWARD TRANSCONDUCTANCE
—VS—
ON DRAIN CURRENT

