

TOPAZ

SEMICONDUCTOR

SD1137, TN0106 TN0110

N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

T-29-25

ORDERING INFORMATION

TO-226AA (TO-92) Plastic Package	SD1137BD	TN0106N3	TN0110N3
Sorted Chips in Wafer Pack	SD1137CHP	TN0106ND	TN0110ND
Description	60V, 2.5 ohm	60V, 3.0 ohm	100V, 3.0 ohm

FEATURES

- Low Threshold, $V_{GS(th)}$ 1.5V max
- Low Output and Transfer Capacitance
- Extended Safe Operating Area
- Complementary P-Channel Drivers Available

APPLICATIONS

- Complementary Voltage and Current Drivers
- Line Drivers
- Pulse Amplifiers
- Solid-State Relays

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

Drain-Source Voltage
 SD1137, TN0106 +60V
 TN0110 +100V
 SD1137, TN0106 +60V
 TN0110 +100V
 Gate-Source Voltage $\pm 30\text{V}$
 Continuous Drain Current

	$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$
SD1137BD	.25A	.46A
TN0106N3 } TN0110N3 }	.23A	.42A

Peak Pulsed Drain Current +2.0A

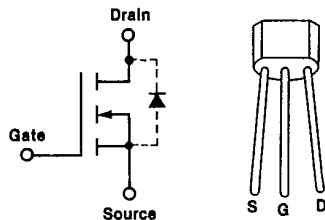
Continuous Device Dissipation
 $T_A = +25^\circ\text{C}$ 0.30W
 $T_C = +25^\circ\text{C}$ 1.0W

TO-92 (N3 & BD) pkg
 Linear Derating Factor
 $T_A = +25^\circ\text{C}$ 3.0mW/ $^\circ\text{C}$
 $T_C = +25^\circ\text{C}$ 10mW/ $^\circ\text{C}$

Operating Junction and Storage Temperature Range
 -55 $^\circ\text{C}$ to +150 $^\circ\text{C}$

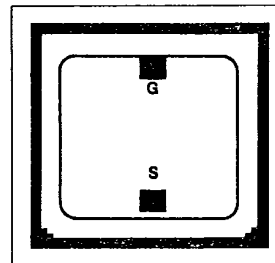
Lead Temperature (1/16" from mounting surface
 for 30 sec) +250 $^\circ\text{C}$

PIN CONFIGURATION



PACKAGE DIMENSIONS (TO-92) TO-226AA (See Package 5)

CHIP CONFIGURATION



Dimensions: .054 x .051 x .020 in.
 Drain is backside contact.

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

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#	PARAMETER	SD1137			TN0106			TN0110			UNIT	CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX			
1	BV_{DSS} Drain-Source Breakdown Voltage	60	90		60	90		100	115		V	$I_D = 1.0\text{mA}$, $V_{GS} = 0$	
2	I_{DSS} Drain-Source Off Leakage Current			100			500				μA	$V_{DS} = 48\text{V}$	$T_A = +125^\circ\text{C}$
3												$V_{DS} = 48\text{V}$	$V_{GS} = 0$
4										500		$V_{DS} = 80\text{V}$	
5			.01	1.0								$V_{DS} = 60\text{V}$	
6					.01	10						$V_{DS} = 60\text{V}$	$V_{GS} = 0$
7								.01	10			$V_{DS} = 100\text{V}$	
8	I_{GBS} Gate-Body Leakage Current			± 1.0			± 1.0			± 1.0	μA	$V_{GB} = \pm 30\text{V}$	$V_{DS} = 0$
9	I_{GSS} Gate-Source Threshold Voltage			1.0			10			10	nA	$V_{GB} = \pm 20\text{V}$	
10	$V_{GS(th)}$ Gate-Source Threshold Voltage	0.5		1.5	0.5		1.5	0.5		1.5	V	$V_{DS} = V_{GS}$, $I_D = 1.0\text{mA}$	
11	$r_{DS(on)}$ Drain-Source On Resistance			4.5			4.5			4.5	ohms	$V_{GS} = 5\text{V}$, $I_D = .25\text{A}$	(Note 1)
12				2.5								$V_{GS} = 10\text{V}$	
13							3.0			3.0		$I_D = 1.0\text{A}$	
14	$I_{D(on)}$ On Drain Current				.75			.75			A	$V_{GS} = 5\text{V}$	
15		2.0			2.0			2.0				$V_{GS} = 10\text{V}$	
16	g_{fs} Common-Source Forward Transcond.	300	500		225	500		225	500		mmhos	$V_{DS} = 25\text{V}$	$I_D = 0.5\text{A}$
17	V_{SD} Source-Drain Forward Voltage			1.5							V	$V_{DS} = 20\text{V}$	$f = 1\text{KHz}$
18	V_{SD} Source-Drain Forward Voltage						1.5			1.5		$I_{SD} = 0.8\text{A}$	$V_{GS} = 0$
19	V_{SD} Source-Drain Forward Voltage											$I_{SD} = 0.5\text{A}$	
20	C_{iss} Common-Source Input Capacitance			60			60			60	pF	$V_{DS} = 25\text{V}$ $V_{GS} = 0$ $f = 1\text{MHz}$	
21	C_{oss} Common-Source Output Capacitance		11	35		11	35		11	35			
22	C_{rss} Common-Source Reverse Transfer Capacitance		1.5	8.0		1.5	8.0		1.5	8.0			
23	t_{on} Turn ON Time		8.0	10		8.0	10		8.0	10	nS	$V_{DD} = 25\text{V}$, $V_{G(on)} = 10\text{V}$ $R_G = 51\Omega$, $R_L = 25\Omega$	
24	t_{off} Turn OFF Time		8.0	12		8.0	12		8.0	12			

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