

**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 Waffle 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

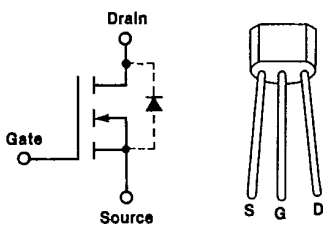
**APPLICATIONS**

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

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

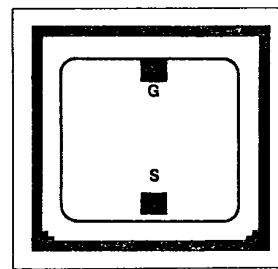
Drain-Source Voltage			Peak Pulsed Drain Current	..... +2.0A
SD1137, TN0106	+60V		Continuous Device Dissipation	
TN0110	+100V		$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$
SD1137, TN0106	+60V		TO-92 (N3 & BD) pkg	0.30W 1.0W
TN0110	+100V		Linear Derating Factor	
Gate-Source Voltage	$\pm 30\text{V}$		$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$
Continuous Drain Current	$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$	TO-92 (N3 & BD) pkg	3.0mW/ $^\circ\text{C}$ 10mW/ $^\circ\text{C}$
SD1137BD	.25A	.46A	Operating Junction and Storage Temperature Range	-55 $^\circ\text{C}$ to +150 $^\circ\text{C}$
TN0106N3 } TN0110N3 }	.23A	.42A	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.



SD1137, TN0106  
TN0110

**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = +25°C unless otherwise specified)

T-29-25

#	PARAMETER	SD1137			TN0106			TN0110			UNIT	CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX			
1	BV <sub>DSS</sub> Drain-Source Breakdown Voltage	60	90		60	90		100	115		V	I <sub>D</sub> = 1.0mA, V <sub>GS</sub> = 0	
2	I <sub>DSS</sub> Drain-Source Off Leakage Current			100							μA	V <sub>DS</sub> = 48V, T <sub>A</sub> = +125°C	
3							500					V <sub>DS</sub> = 48V, V <sub>GS</sub> = 0	
4										500			V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0
5			.01	1.0									V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0
6						.01	10						V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0
7									.01	10			V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0
8		I <sub>GSS</sub> Gate-Body Leakage Current			±1.0			±1.0				±1.0	μA
9	V <sub>GS(th)</sub> Gate-Source Threshold Voltage			1.0			10			10	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0	
10	V <sub>GS(th)</sub> Gate-Source Threshold Voltage	0.5		1.5	0.5		1.5	0.5		1.5	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1.0mA	
11	r <sub>DS(on)</sub> Drain-Source On Resistance			4.5			4.5			4.5	ohms	V <sub>GS</sub> = 5V, I <sub>D</sub> = .25A	
12	r <sub>DS(on)</sub> Drain-Source On Resistance			2.5							ohms	V <sub>GS</sub> = 10V, I <sub>D</sub> = 1.0A	
13							3.0			3.0		I <sub>D</sub> = 0.5A	
14	I <sub>D(on)</sub> On Drain Current				.75			.75			A	V <sub>GS</sub> = 5V, V <sub>DS</sub> = 25V	
15	I <sub>D(on)</sub> On Drain Current	2.0			2.0			2.0			A	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 25V	
16			300	500								I <sub>D</sub> = 0.5A	
17	g <sub>fs</sub> Common-Source Forward Transcond.				225	500		225	500		mmhos	V <sub>DS</sub> = 25V, I <sub>D</sub> = 0.5A	
18	V <sub>SD</sub> Source-Drain Forward Voltage			1.5							V	V <sub>GS</sub> = 20V, f = 1KHz	
19							1.5			1.5		I <sub>SD</sub> = 0.8A, V <sub>GS</sub> = 0	
20	c <sub>iss</sub> Common-Source Input Capacitance			60			60			60	pF	I <sub>SD</sub> = 0.5A	
21	c <sub>oss</sub> Common-Source Output Capacitance		11	35		11	35		11	35	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0, f = 1MHz	
22	c <sub>rss</sub> Common-Source Reverse Transfer Capacitance		1.5	8.0		1.5	8.0		1.5	8.0	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0, f = 1MHz	
23	t <sub>on</sub> Turn ON Time		8.0	10		8.0	10		8.0	10	nS	V <sub>DD</sub> = 25V, V <sub>G(on)</sub> = 10V	
24	t <sub>off</sub> Turn OFF Time		8.0	12		8.0	12		8.0	12	nS	R <sub>G</sub> = 51Ω, R <sub>L</sub> = 25Ω	

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

