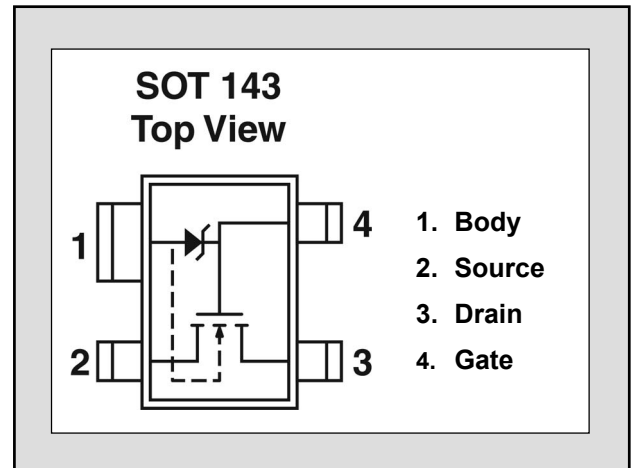


SST823 SST824

HIGH SPEED N-CANNEL LATERAL DMOS SWITCH ZENER PROTECTED

FEATURES	
HIGH SWITCHING SPEED	$t_{ON} = 2.0ns$
LOW ON RESISTANCE	$r_{DS(ON)} = 5\Omega$
LOW GATE NODE CAPACITANCE	$C = 25pF$
LOW GATE LEAKAGE CAPACITANCE	$I_{G(ON)} = 0.05\mu A$
ABSOLUTE MAXIMUM RATINGS¹ @ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Operating Junction Temperature	-55 to +125 °C
Maximum Power Dissipation	
Continuous Power Dissipation ²	$P_D = 300mW$
Maximum Currents	
Pulsed Drain Current ³	$I_{DS} = 1A$
Continuous Drain Current ²	$I_{DS} = 200mA$
Maximum Voltages	
V_{DSO}	Drain to Source +25V
V_{SDO}	Source to Drain SST823 +15V
	SST824 +20V
V_{DB}	Drain to Body SST823 +22.5V
	SST824 +30V
V_{SB}	Source to Body SST823 +22.5V SST824 +25V
V_{GB}	Gate to Body +30V
V_{GS}	Gate to Source $\pm 22.5V$
V_{GD}	Gate to Drain $\pm 22.5V$



ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
BV_{DS}	Breakdown Voltage Drain to Source	25			V	$I_D = 10\mu A, V_{GS} = V_{BS} = 0$
		15				$I_D = 100nA, V_{GS} = V_{BS} = -5V$
BV_{SD}	Breakdown Voltage Source to Drain	SST823 15			V	$I_S = 100nA, V_{GD} = V_{BD} = -5V$
		SST824 20				
BV_{DB}	Breakdown Voltage Drain to Body	SST823 22.5			V	$I_D = 100nA, V_{GB} = 0, \text{Source Open}$
		SST824 25				
BV_{SB}	Breakdown Voltage Source to Body	SST823 22.5			V	$I_S = 100nA, V_{GB} = 0, \text{Drain Open}$
		SST824 25				
$V_{GS(OFF)}$	Cutoff Voltage Gate to Source	0.1		2	V	$V_{DS} = V_{GS}, V_{SB} = 0V, I_D = 10\mu A$
$r_{DS(ON)}$	On Resistance Drain to Source ⁴			7.5	Ω	$V_{GS} = 5.0V, I_D = 50mA, V_{SB} = 0$
				5.0		$V_{GS} = 10V, I_D = 500mA, V_{SB} = 0$
g_{fs}	Forward Transconductance ⁴	100	120		mmho	$V_{DS} = 15V, I_D = 200mA$
$I_{D(OFF)}$	Leakage Current Drain Node			100	nA	$V_{GS} = V_{BS} = -5V, V_{DS} = 15V$
$I_{S(OFF)}$	Leakage Current Source Node			100	nA	$V_{GD} = V_{BD} = -5V, V_{DS} = 15V$
$I_{G(OFF)}$	Leakage Current Gate Node (OFF)			100	nA	$V_{GB} = 0V, V_{GS} = V_{GD} = -22.5V$
$I_{G(ON)}$	Leakage Current Gate Node (ON)			10	μA	$V_{GB} = 30V, V_{GS} = V_{GD} = 22.5V$

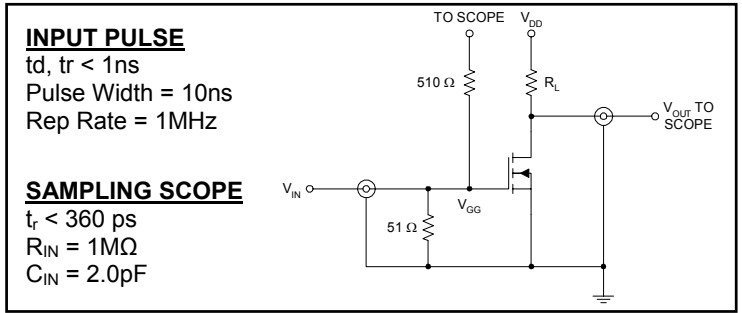
ELECTRICAL CHARACTERISTICS CONT.

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$C_{(GS+GD+GB)}$	Capacitance Gate Node		25	30	pF	$V_{DS} = 10V, V_{GS} = V_{BS} = -15V, f = 1MHz$
$C_{(GD+DB)}$	Capacitance Drain Node		13	15	pF	
$C_{(GS+SB)}$	Capacitance Source Node		35	40	pF	
C_{DG}	Capacitance Reverse Transfer		3	5	pF	
t_{ON}	Turn On Time ⁵		2.0	3.0	ns	$V_{DD} = 10V, V_{G(ON)} = 10V,$ $R_L = 133\Omega, R_G = 51\Omega$
t_{OFF}	Turn Off Time ⁵		3.0	4.0	ns	

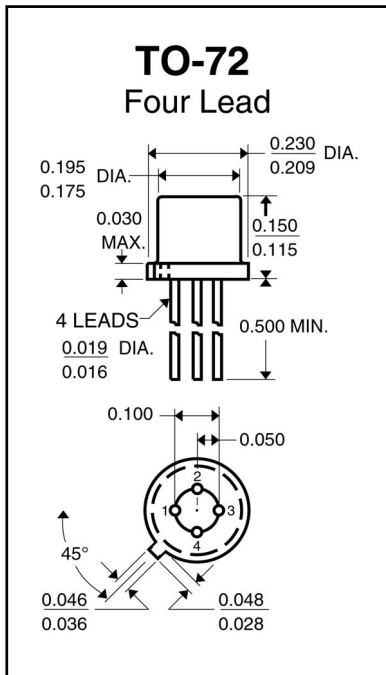
SWITCHING CHARACTERISTICS

V_{GG}	V_{DD}	R_L	$t_{d(ON)}$ TYP	t_r TYP	t_{OFF} TYP
5V	5V	100 Ω	<1ns	1ns	3ns
	10V	200 Ω	<1ns	1ns	3ns
	20V	300 Ω	<1ns	1ns	3ns
10V	5V	67 Ω	<1ns	1ns	3ns
	10V	133 Ω	<1ns	1ns	3ns
	20V	270 Ω	<1ns	1ns	3ns

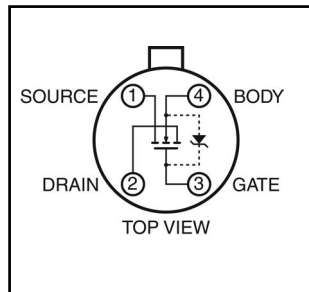
TEST CIRCUIT



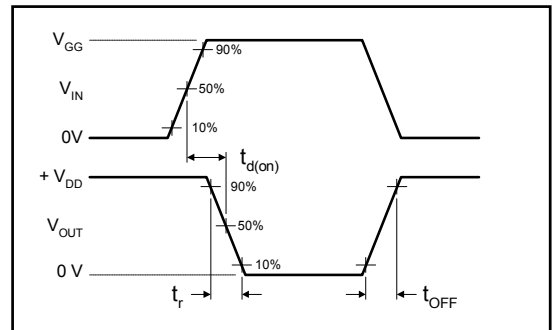
PACKAGE OPTION



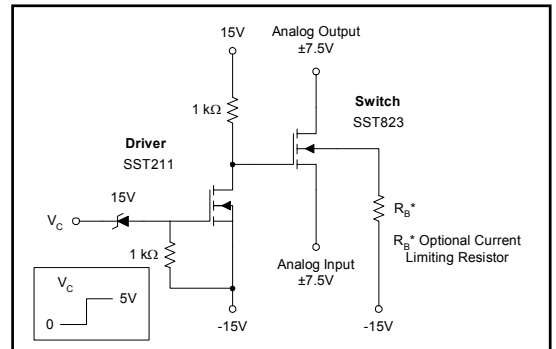
TO-72 PIN LAYOUT



SWITCHING WAVEFORMS



DRIVER / SWITCH APPLICATION



NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. For SOT143 package only.
3. Pulsed @ 80 μs , 1% duty cycle.
4. See test conditions in Electrical Characteristics section.
5. See Switching Characteristics and Test Circuit for detail.

Information furnished by Linear Integrated Systems is believed to be accurate and reliable. However, no responsibility is assumed for its use; nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Linear Integrated Systems.