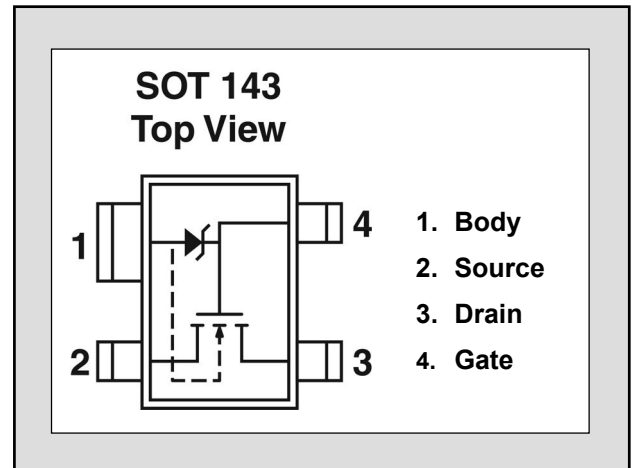


SST823 SST824

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	$V_{GB} = 30V, V_{GS} = V_{GD} = 22.5V$

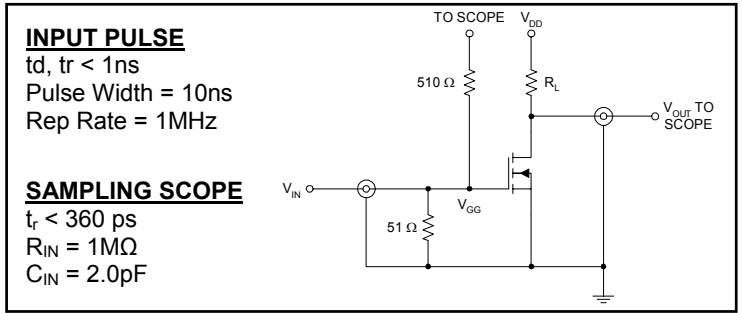
ELECTRICAL CHARACTERISTICS CONT.

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	

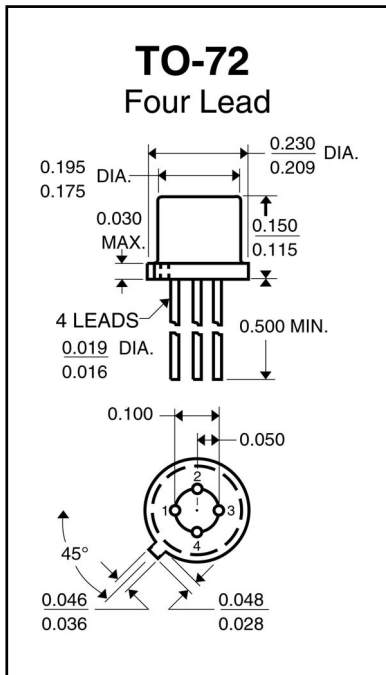
SWITCHING CHARACTERISTICS

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

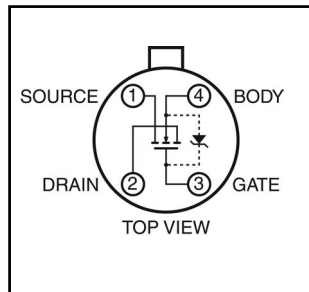
TEST CIRCUIT



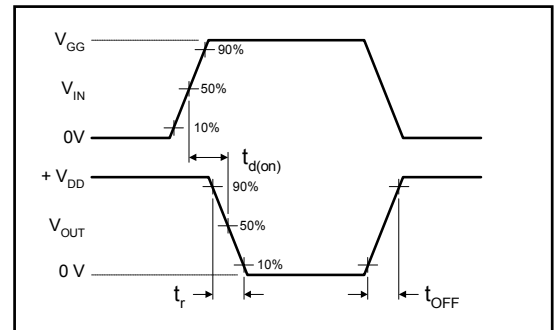
PACKAGE OPTION



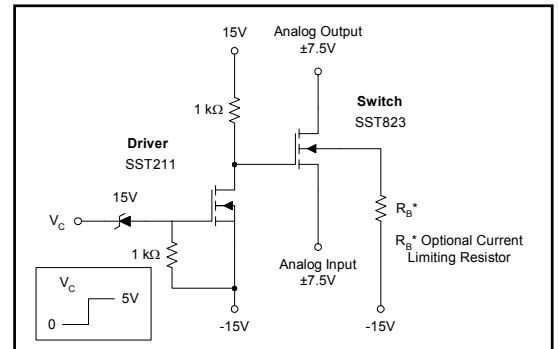
TO-72 PIN LAYOUT



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.

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