

•General Description

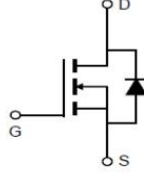
The SJ MOSFET LH70R260 has the low $R_{DS(on)}$, low gate charge, fast switching and excellent avalanche characteristics. This device offers extremely fast and robust body diode, and is suitable for telecom and power supplies.

•Features

- Much lower R_{on} *A performance for On-state efficiency
- Much lower FOM for fast switching efficiency

•Application

- LED/LCD/PDP TV and monitor Lighting
- Solar/Renewable/UPS-Micro Inverter System
- Power Supplies



$V_{DS} = 700V$

$R_{DS(ON)} = 260m\Omega$

$I_D = 15A$



■ RoHS COMPLIANT

TO-252

•Ordering Information:

Part number	LH70R260
Package	TO-252
Basic ordering unit (pcs)	2500
Normal Package Material Ordering Code	LH70R260T5-T0252-TAP
Halogen Free Ordering Code	LH70R260T5-T0252-TAP-HF

•Absolute Maximum Ratings (TC = 25°C)

PARAMETER		SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage		BV_{DSS}	700	V
Gate-Source Voltage		V_{GS}	± 30	V
Continuous Drain Current	TC = 25°C	I_D	15	A
	TC = 100°C		9	
Pulsed drain current (TC = 25°C, tp limited by Tjmax) ¹		$I_{D \text{ pulse}}$	45	A
Single Pulse Avalanche Energy ¹		I_{AR}	2.4	A
Single Pulse Avalanche Energy ²		E_{AS}	290	mJ
Repetitive Avalanche Energy ¹		E_{AR}	0.44	mJ
Power Dissipation (TC=25°C)		P_D	65	W
Operating Temperature and Storage Temperature Range		T_J/T_{STG}	-55~+150	°C
MOSFET dv/dt ruggedness, $V_{DS}=0 \dots 480V$		dv/dt	50	V/ns
Reverse diode dv/dt, $V_{DS}=0 \dots 480V, I_{SD} \leq I_D$		dv/dt	15	V/ns

●Electronic Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	700	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	--	4.5	V
Drain-source On Resistance ³	$R_{DS(ON)}$	$V_{GS}=10V, I_D=7.5A$	--	0.24	0.26	Ω
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V, T_J=25^\circ C$	--	--	1	μA
		$V_{DS}=650V, V_{GS}=0V, T_J=125^\circ C$	--	--	100	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30$	--	--	± 100	nA
Forward Transconductance ³	R_G	$f=1.0MHz$ open drain	--	--	12.5	S
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $V_{DS}=100V$ $f=1.0MHz$	--	1202	--	pF
Output Capacitance	C_{oss}		--	43	--	
Reverse transfer Capacitance	C_{rss}		--	5	--	
Turn -Off Delay Time	$T_d(off)$	$V_{DD}=400V,$ $I_D=15.0A$ $R_G=25\Omega$	--	100	--	ns
Turn-on delay time	$T_d(on)$		--	25	--	
Rise time	T_r		--	63	--	
Fall time	T_f		--	50	--	
Total Gate Charge	Q_g	$I_D=15A,$ $V_{DS}=520V$ $V_{GS}=10V$	--	27	---	nC
Gate-to-Source Charge	Q_{gs}		--	5.5	--	
Gate-to-Drain Charge	Q_{gd}		--	10.5	---	
Continuous Diode Forward Current	I_S		--	--	15.0	A
Pulsed Diode Forward Current	I_{SM}		--	--	45.0	A
Diode Forward Voltage	V_{SD}	$T_J=25^\circ C, I_S=15.0A$ $V_{GS}=0V$	--	0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_{RR}=400V,$ $I_f=I_S$ $di_F/dt=100A/\mu s$	--	410	--	ns
Reverse Recovery Charge	Q_{rr}		--	4.1	--	μC
Peak Reverse Recovery Current	I_{RRM}		--	20	--	A

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	R_{thJC}	1.92	$^\circ C/W$
Thermal Resistance Junction-ambient	R_{thJA}	62	$^\circ C/W$

Notes:

1.Repetitive Rating: Pulse width limited by maximum junction temperature.

2. $I_{AS}=1.8A, V_{DD}=50V, R_G=25\Omega$, Starting $T_J=25^\circ C$

3. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

• **Typical Characteristics** $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

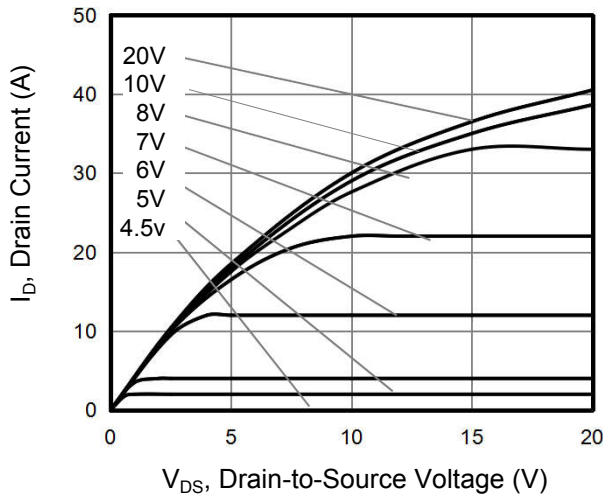


Figure 2. Transfer Characteristics

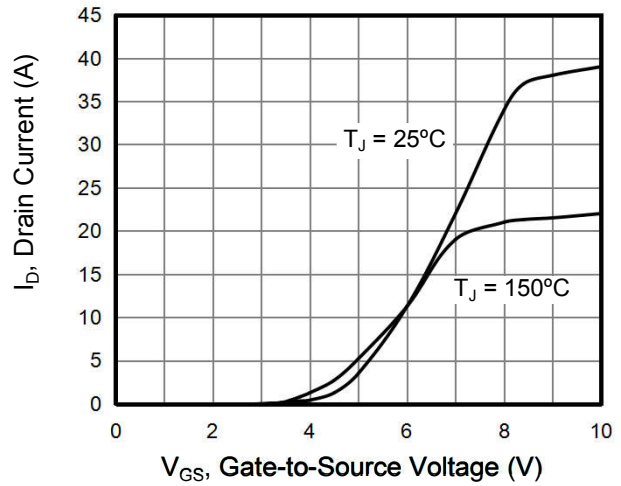


Figure 3. On-Resistance vs. Drain Current

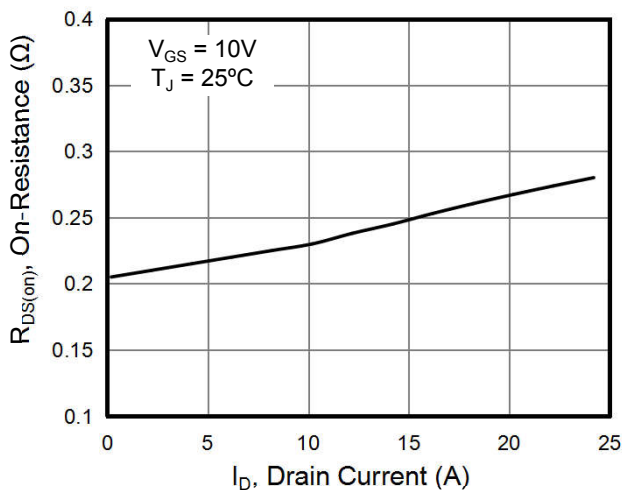


Figure 4. Capacitance

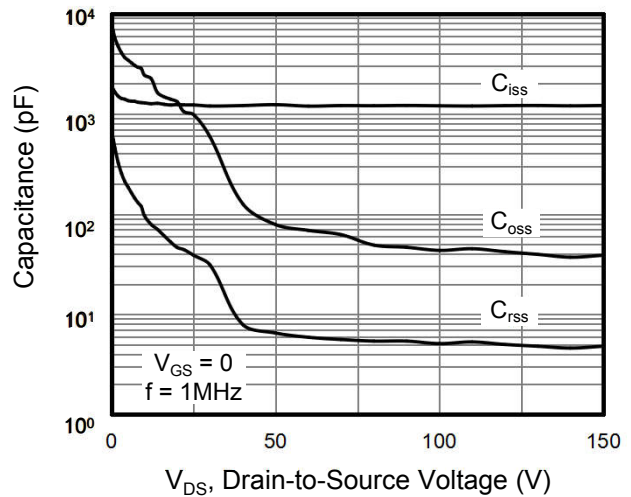


Figure 5. Gate Charge

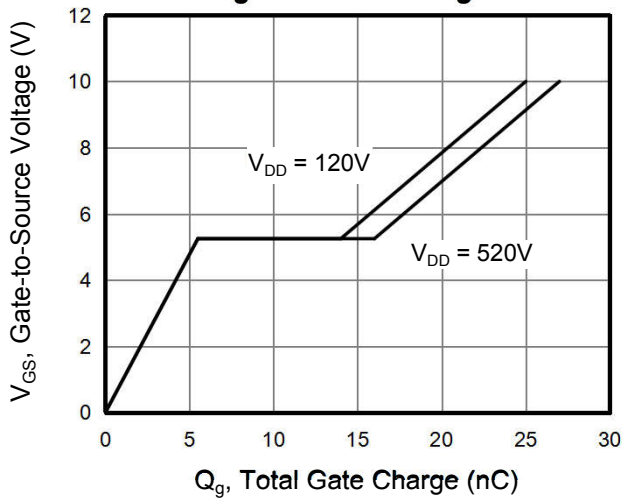
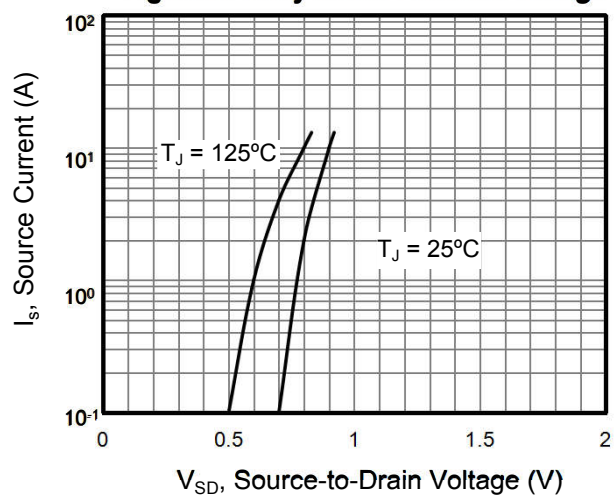


Figure 6. Body Diode Forward Voltage



• **Typical Characteristics**(cont.)

Figure 7. On-Resistance vs. Junction Temperature

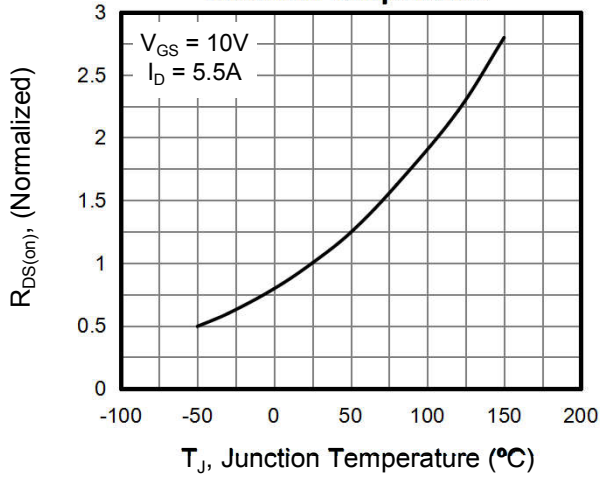


Figure 8. Threshold Voltage vs. Junction Temperature

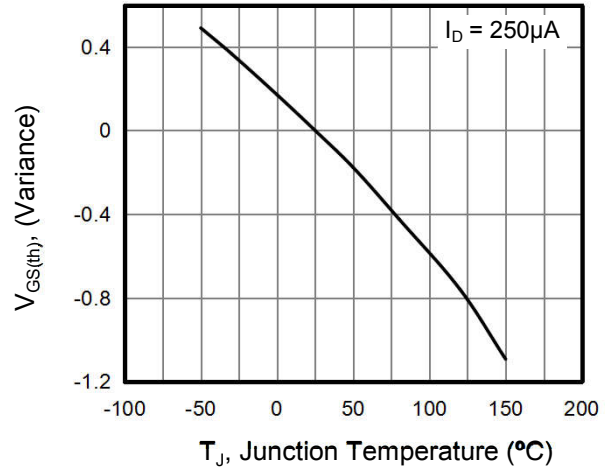


Figure 9. Breakdown voltage vs. Junction Temperature

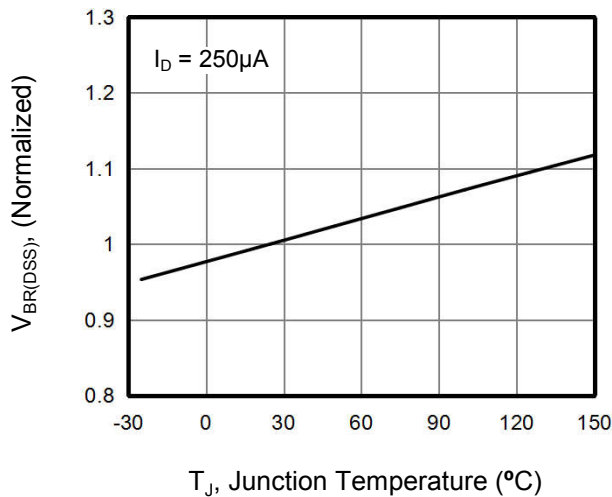


Figure10 . Transient Thermal Impedance TO-252

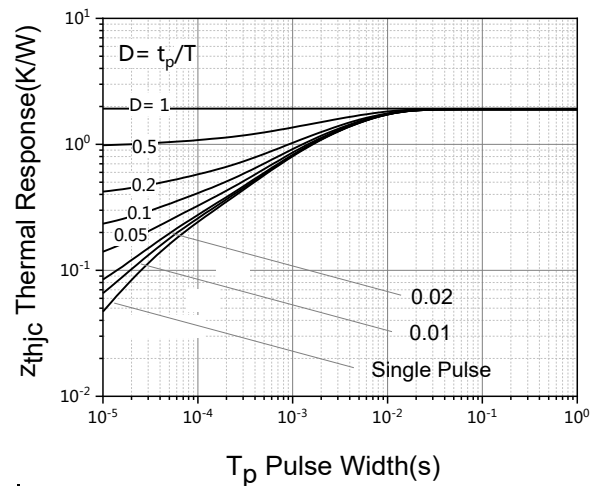
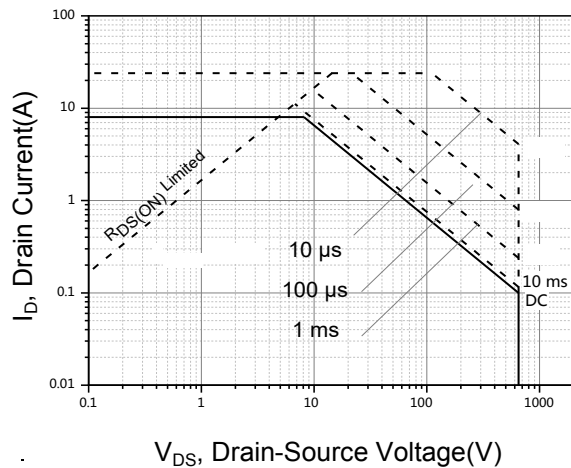


Figure 11. Safe Operation area for TO-252, $T_c=25^\circ C$



• **Test Circuit and Waves**

Figure A: Gate Charge Test Circuit and Waveform

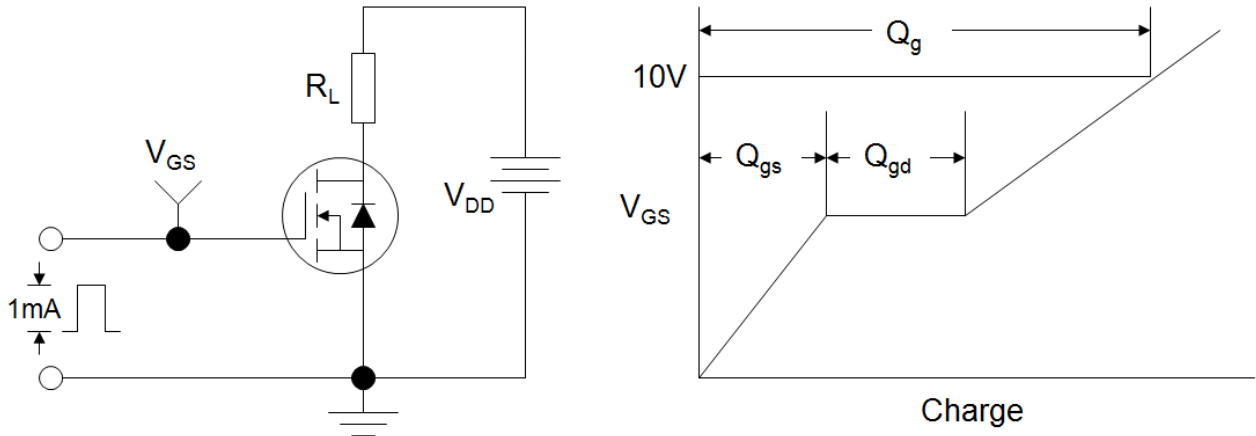


Figure B: Resistive Switching Test Circuit and Waveform

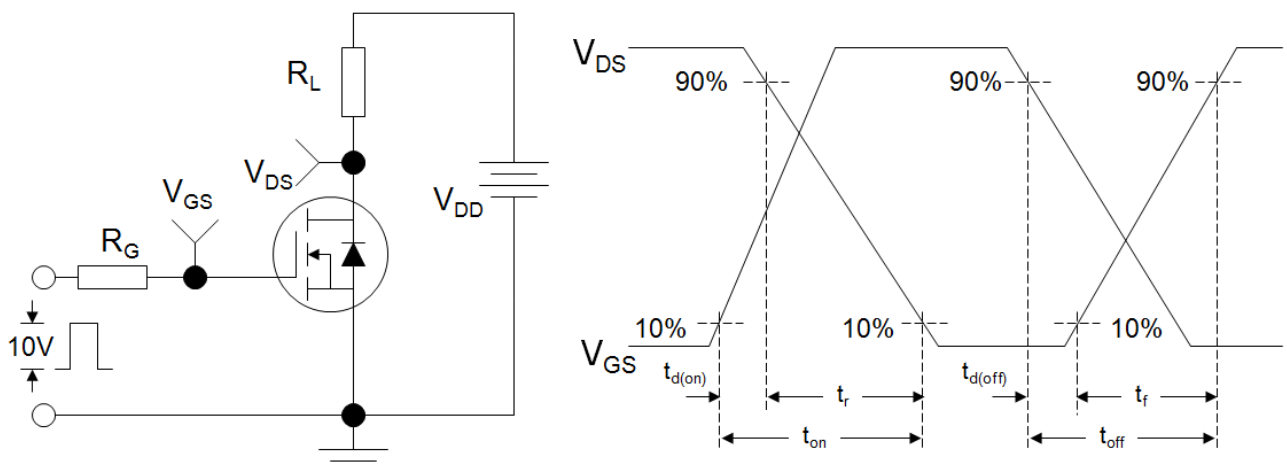
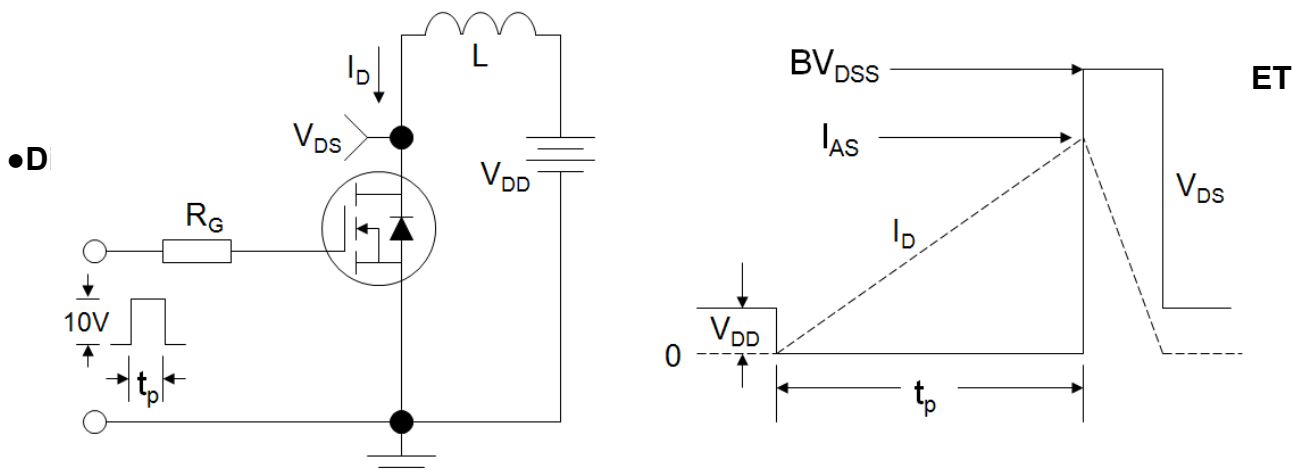


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



• **D**

•Dimensions (TO-252)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	2.10	2.50	L2	0.60	1.20
b	0.50	0.90	L3	1.20	1.80
b1	0.70	1.20	B	0.80	1.30
b2	0.40	0.70	C	0.40	0.70
D	6.20	6.80	D1	5.10	5.60
E	5.80	6.40	e1	2.10	2.45
L	3.60	4.60	e2	4.40	4.80
L1	0.80	1.60			

