

•General Description

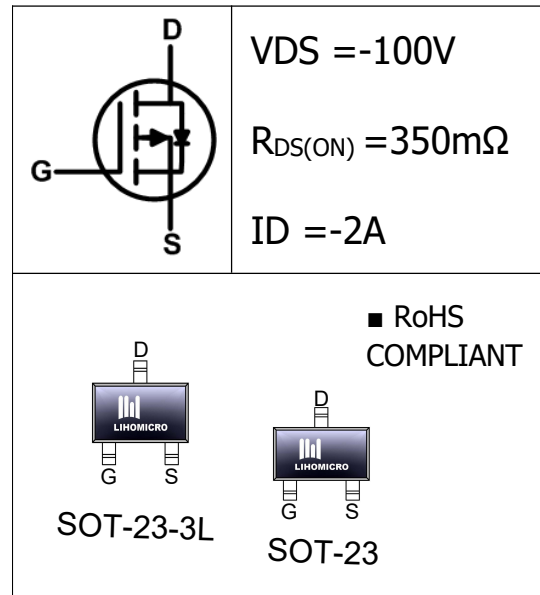
The LH02P10 uses trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. This device is suitable for high current load applications.

•Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching

•Application

- LED/LCD/PDP TV and monitor Lighting
- Power Supplies


•Ordering Information:

Part Number	LH02P10	LH02P10
Package	SOT-23	SOT-23-3L
Basic Ordering Unit (pcs)	3000	3000
Normal Package Material Ordering Code	LH02P10S23-SOT23-TAP	LH02P10S23L-SOT23-TAP
Halogen Free Ordering Code	LH02P10S23-SOT23-TAP-HF	LH02P10S23L-SOT23-TAP-HF

•Absolute Maximum Ratings (TC =25℃)

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$I_D (T_A = 25^\circ C)$	-2	A
	$I_D (T_A = 70^\circ C)$	-1.8	A
Pulsed drain current ($T_A = 25^\circ C$, tp limited by T_{jmax}) ¹	I_{DM}	-5	A
Power Dissipation(TC=25℃)	$P_D(T_A=25^\circ C)$	1	W
	$P_D(T_A=70^\circ C)$	0.8	W
Operating Temperature	T_J	-50~+150	℃
Storage Temperature	T_{STG}	-50~+150	℃

●Electronic Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	-100	--	--	V
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =250uA	-1.0	-1.5	-2.5	V
Drain-source On Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-1A	--	350	520	mΩ
		V _{GS} =-4.5V, I _D =-1A	--	400	560	
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-80V,V _{GS} =0V,T _J =25℃	--	--	10	uA
		V _{DS} =-80V,V _{GS} =0V,T _J =125℃	--	--	100	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20,V _{DS} =0V	--	--	±100	nA
Dynamic Electrical Characteristics @ T _J =25℃(Unless otherwise stated)						
Input Capacitance	Ciss	V _{GS} = 0V, V _{DS} = -15V f = 1.0MHz	--	553	--	pF
Output Capacitance	Coss		--	29	--	
Reverse transfer Capacitance	Crss		--	20	--	
Total Gate Charge	Qg	V _{DS} =-15V I _D =-0.5A V _{GS} =-4.5V	--	4.5	--	nC
Gate Source Charge	Qgs		--	1.1	--	
Gate Drain Charge	Qgd		--	1.6	--	
Switching Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{DD} =-50V, I _D =-0.5A V _{GS} =-10V, R _G =3.3Ω	--	13.5	--	nS
Turn-on Rise Time	T _r		--	6.8	--	
Turn-Off Delay Time	T _{d(off)}		--	34	--	
Turn-Off Fall Time	T _f		--	3	--	
Source Drain Diode Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V,Force Current	--	--	1.8	A
Diode Forward Voltage	V _{SD}	T _J =25℃, I _S =-1.0A V _{GS} =0V	--	-0.84	-1.2	V

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Maximum Junction-ambient	R_{thJA}	125	$^{\circ}C/W$

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test : Pulse width $\leq 300 \mu s$, Duty cycle $\leq 2\%$.

• Typical Characteristics

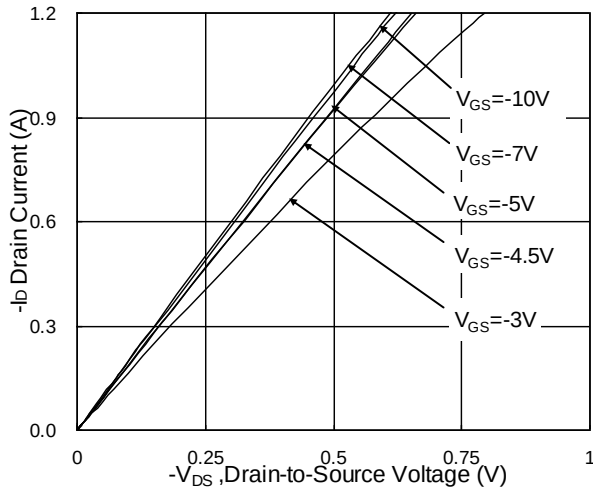


Fig.1 Typical Output Characteristics

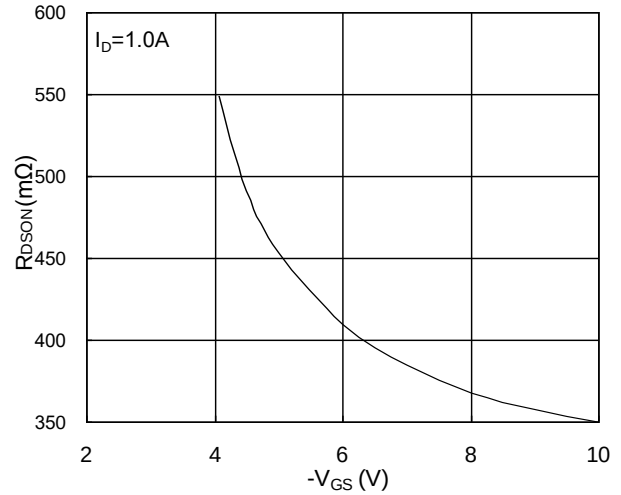


Fig.2 On-Resistance vs. Gate-Source

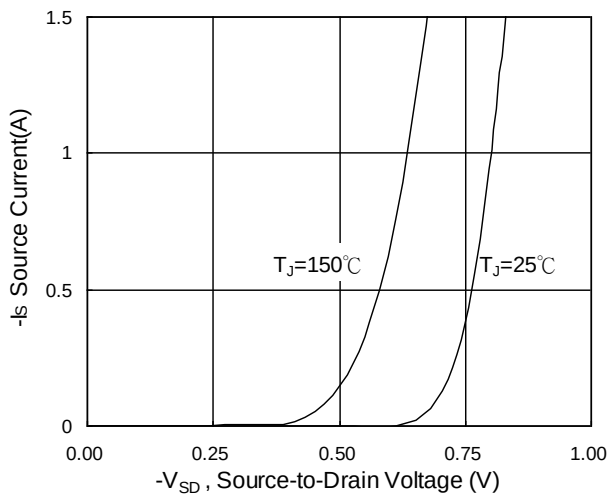


Fig.3 Forward Characteristics Of Reverse

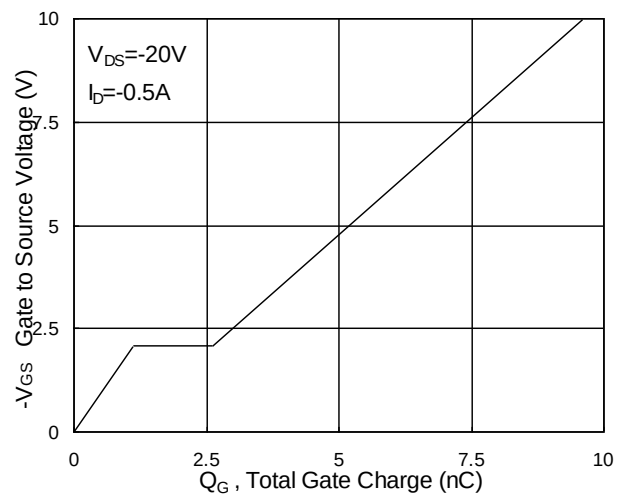


Fig.4 Gate-Charge Characteristics

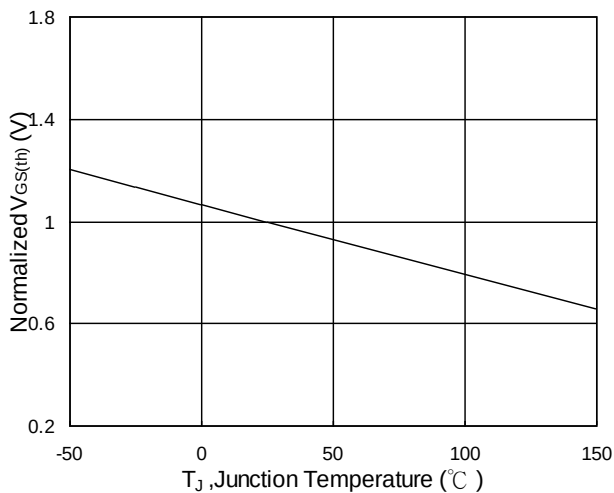


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

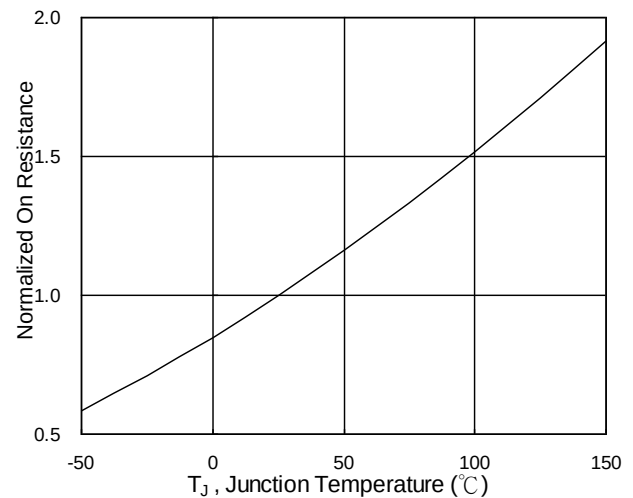


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

● **Typical Characteristics**(cont.)

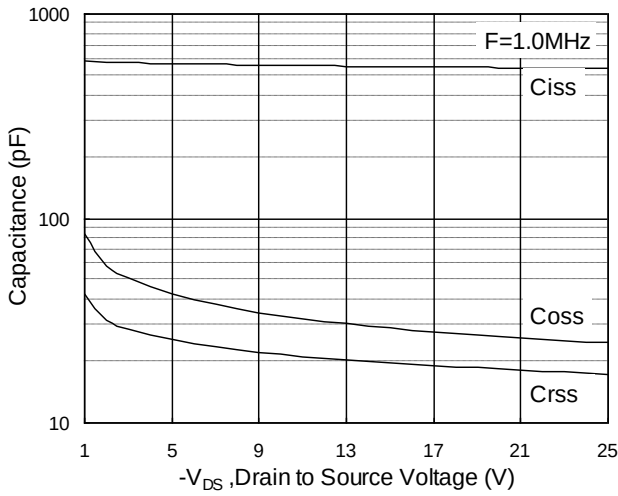


Fig.7 Capacitance

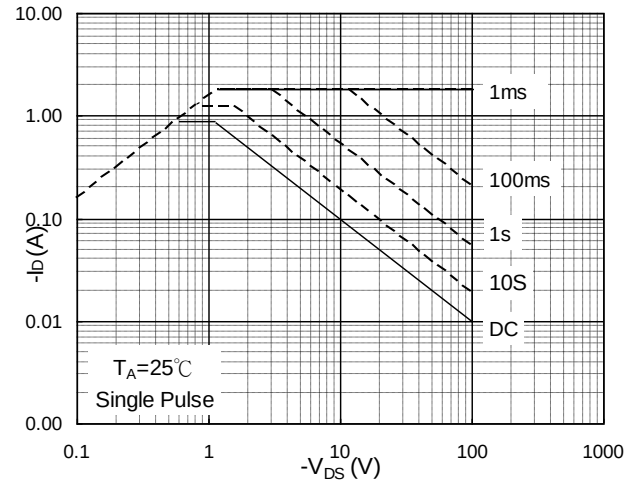


Fig.8 Safe Operating Area

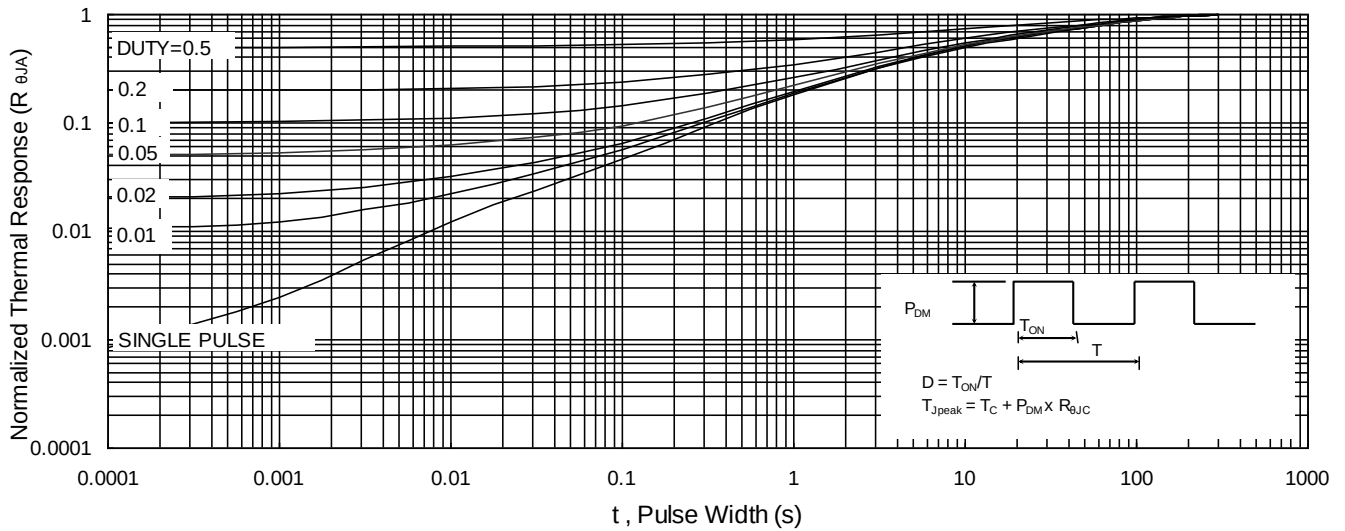


Fig.9 Normalized Maximum Transient Thermal Impedance

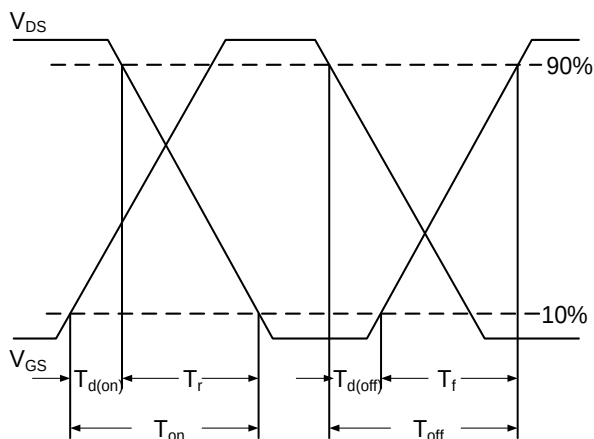


Fig.10 Switching Time Waveform

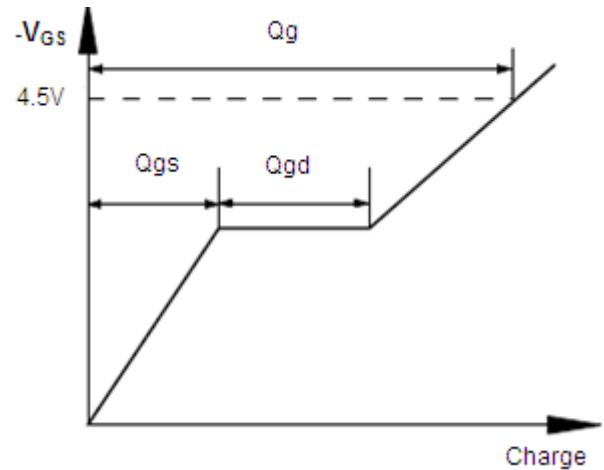
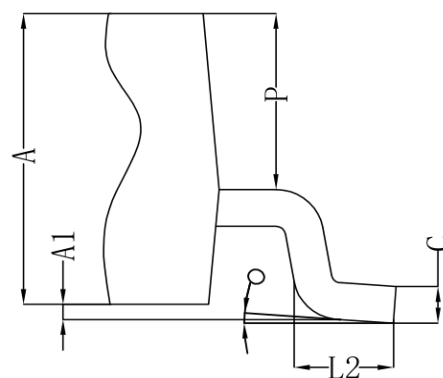
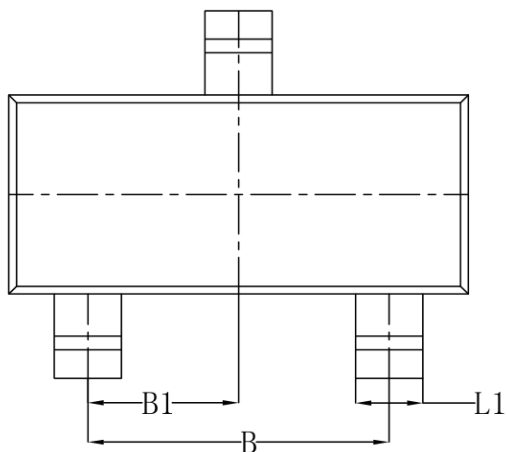
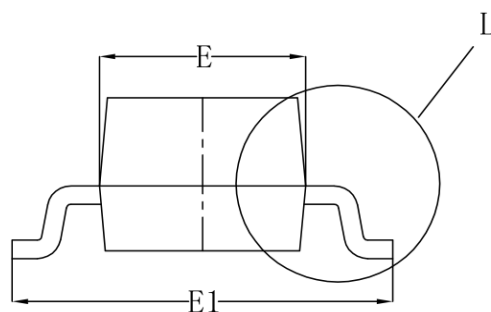
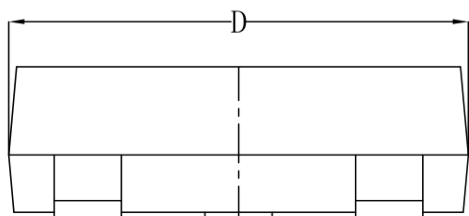


Fig.11 Gate Charge Waveform

●Dimensions(SOT-23)

Symbol	Dim in mm		Max
	Min	Nor	
A	0.900	1.000	1.100
A1	0.000	0.050	0.100
L1	0.350	0.400	0.500
C	0.100	0.110	0.120
D	2.800	2.900	3.000
E	1.250	1.300	1.350
E1	2.250	2.400	2.550
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.200	0.350	0.450
P	0.550	0.575	0.600



Detial L

●Dimensions(SOT-23-3L)

Symbol	Dim in mm		Max
	Min	Nor	
A	1.050	1.100	1.150
A1	0.000	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.300	0.450	0.600
o	0°	4°	8°

