

● General Description

The LH023P06 combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

● Features

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

● Application

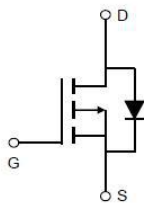
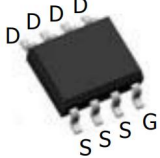
- Load Switch
- PWM Application
- BLDC Motor driver

● Ordering Information:

Part Number	LH023P06
Package	SOP-8
Basic ordering unit (pcs)	4000
Normal Package Material Ordering Code	LH023P06S-SOP8-TAP
Halogen Free Ordering Code	LH023P06S-SOP8-TAP-HF

● Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current($T_C=25^\circ\text{C}$)	I_D	-8.5	A
Pulsed Drain Current ¹	I_{DM}	-20	A
Total Power Dissipation ²	$P_D@T_C=25^\circ\text{C}$	3.6	W
Total Power Dissipation	$P_D@T_A=25^\circ\text{C}$	0.69	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Single Pulse Avalanche Energy @ $L=0.1\text{mH}$	E_{AS}	45	mJ
Avalanche Current@ $L=0.1\text{mH}$	I_{AS}	-8.5	A

	$V_{DS} = -60\text{V}$ $R_{DS(ON)} = 23\text{m}\Omega$ $I_D = -8.5\text{A}$
 SOP-8	■ RoHS COMPLIANT

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-60	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = -250\mu A$	-1.2	--	-2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = -60V, V_{GS} = 0V$	--	--	-1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	--	--	± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -15A$	--	23	30	m Ω
		$V_{GS} = -4.5V, I_D = -10A$	--	28	36	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = -10V, I_D = -5A$	--	20	--	s

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V$ $f = 1MHz$	--	2700	--	pF
Output capacitance	C_{oss}		--	410	--	
Reverse transfer capacitance	C_{rss}		--	270	--	
Total gate charge	Q_g	$V_{DD} = -25V$ $I_D = -10A$ $V_{GS} = -10V$	--	18	--	nC
Gate - Source charge	Q_{gs}		--	8.6	--	
Gate - Drain charge	Q_{gd}		--	13.8	--	

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case ²	R_{thJC}	--	--	1.8	$^{\circ}C/W$
Thermal resistance, junction - ambient	R_{thJA}	--	--	45	$^{\circ}C/W$
Soldering temperature, wavesoldering for 10s	T_{sold}	--	--	265	$^{\circ}C$

Notes:

- 1 Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
- 2 Device mounted on FR-4 substrate PC board, 2ozcopper, with thermal bias to bottom layer 1inch square copper plate

• Typical Characteristics

Fig.1 Gate-Charge Characteristics

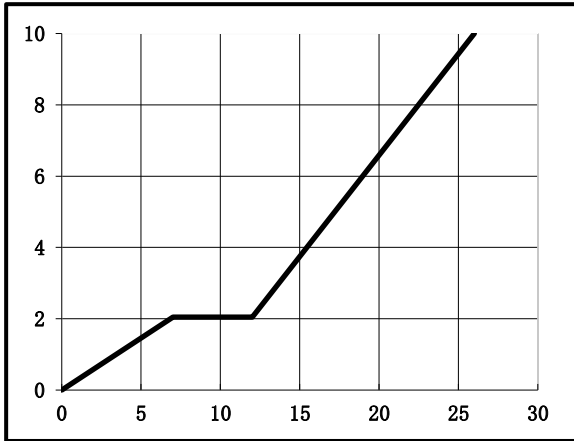


Fig.2 Capacitance Characteristics

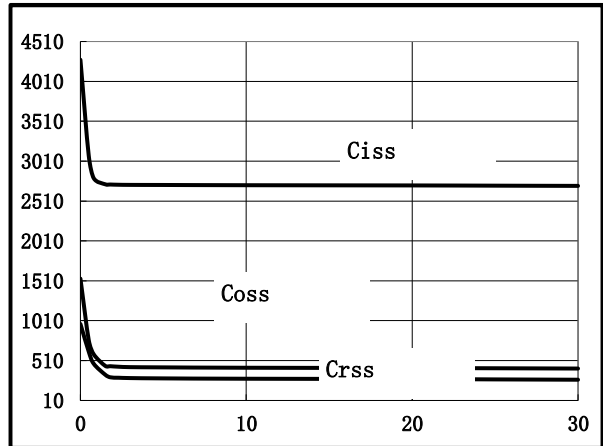


Fig.3 Power Dissipation

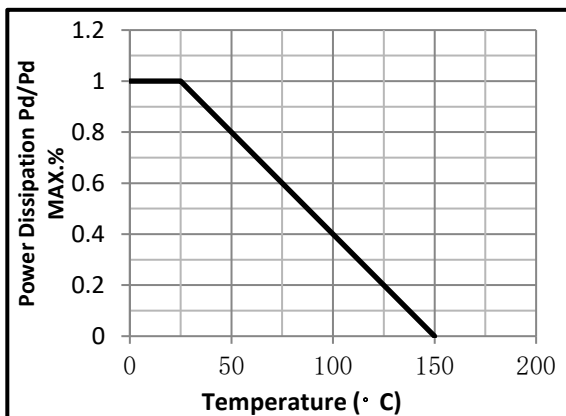


Fig.4 Typical output Characteristics

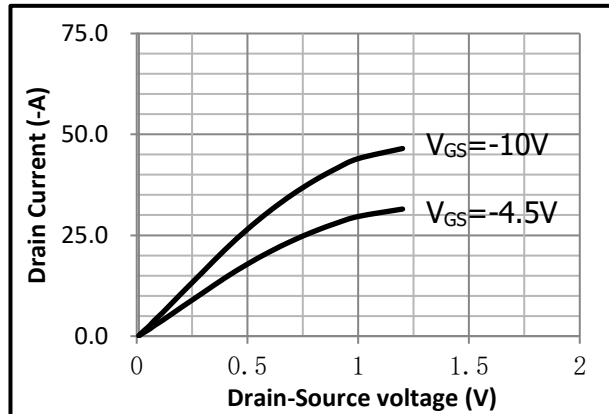
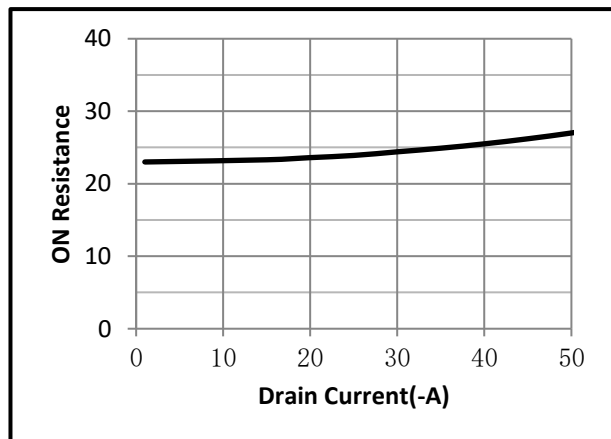
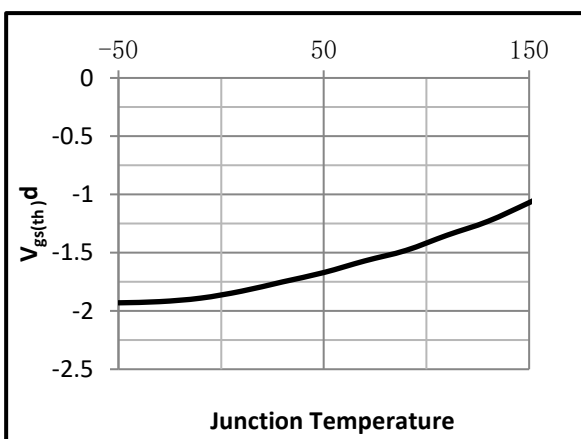


Fig.5 Threshold Voltage V.S Junction Temperature Fig.6 Resistance V.S Drain Current





• Typical Characteristics(cont.)

Fig.7 On-Resistance VS Gate Source Voltage

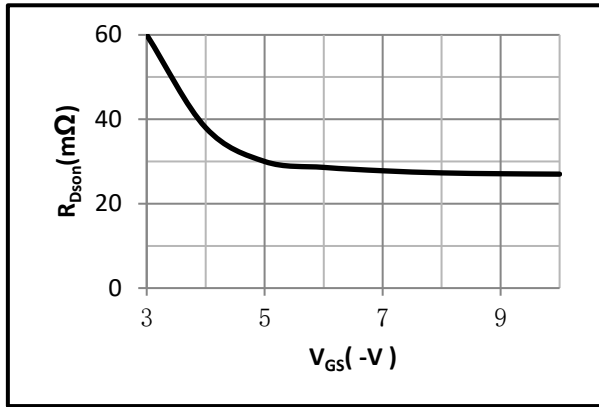


Fig.8 On-Resistance V.S Junction Temperature

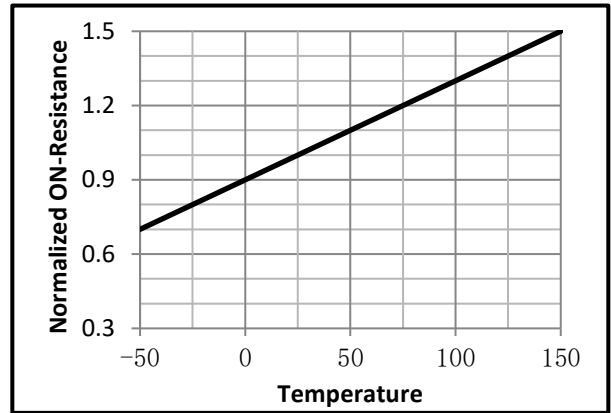


Fig.9 Switching Time Measurement Circuit

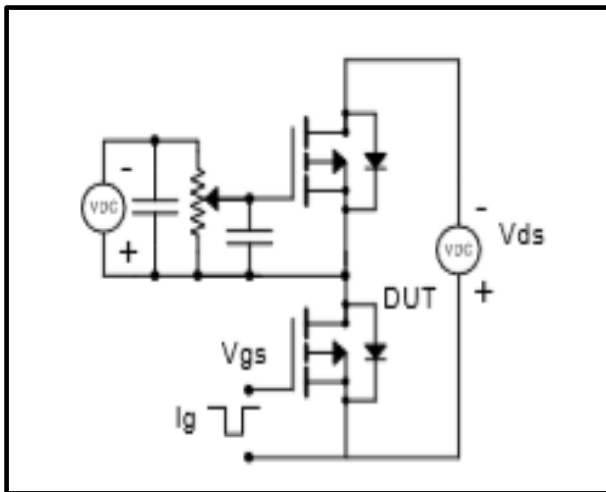


Fig.10 Gate Charge Waveform

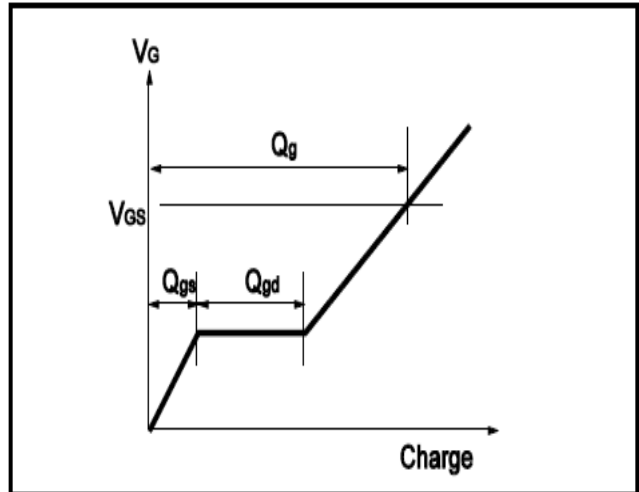


Fig.11 Switching Time Measurement Circuit

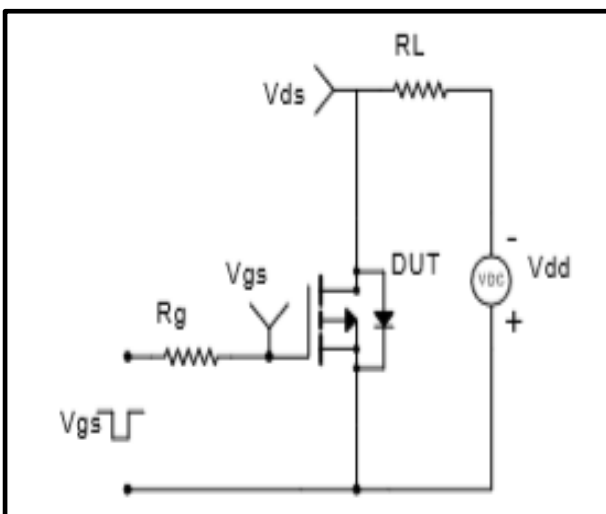
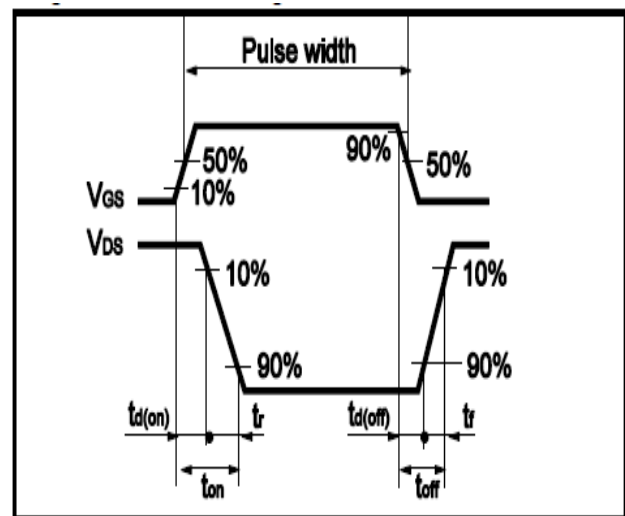


Fig.12 Gate Charge Waveform



●Dimensions (SOP-8)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	1.30	1.60	e	1.27BSC	
A1	1.35	1.85	L	0.40	1.30
b	0.30	0.60			
C	0.15	0.35			
D	4.60	5.20			
E	3.70	4.10			
E1	5.70	6.30			

