

• General Description

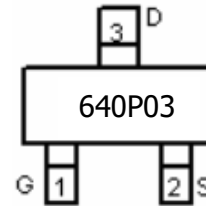
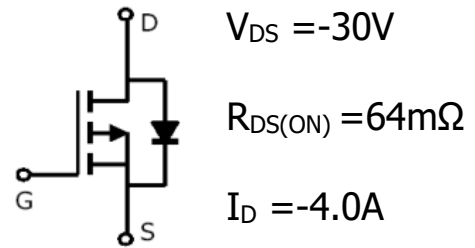
This device is suitable for use as a load switch or in PWM applications.

• Features

- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching

• Application

- PWM
- SMPS 2nd Synchronous Rectifier
- BLDC Motor driver

• Product Summary


SOT-23

• Ordering Information:

Part NO.	ZM640P03T
Marking	640P03
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

• Absolute Maximum Ratings ($T_c = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	$I_{D@TC=25^\circ C}$	-4.0	A
	$I_{D@TC=75^\circ C}$	-3.0	A
	$I_{D@TC=100^\circ C}$	-2.5	A
Pulsed Drain Current	I_{DM}	-12	A
Total Power Dissipation($T_A=25^\circ C$)	$P_D@T_A=25^\circ C$	1.4	W
Total Power Dissipation($T_A=70^\circ C$)	$P_D@T_A=70^\circ C$	1.0	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_D = -250\mu A$	-0.5		-1.3	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1.0	μA
		$V_{DS} = -24V, V_{GS} = 0V$ $T_J = 55^\circ C$			-5.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -4.2A$		64	83	m Ω
		$V_{GS} = -4.5V, I_D = -4.0A$		80	104	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -5A$	7		11	S
Source-Drain Voltage	V_{SD}	$V_{GS} = 0V, I_S = -1A$			-1.0	V

•Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$V_{GS} = 0V$	-	470	-	pF
Output capacitance	C_{oss}	$V_{DS} = -15V$	-	115	-	
Reverse transfer capacitance	C_{rss}	$f = 1MHz$	-	50	-	

•Gate Charge characteristics($T_a = 25^\circ C$)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD} = 15V$	-	6	-	nC
Gate - Source charge	Q_{gs}	$I_D = 8A$	-	2	-	
Gate - Drain charge	Q_{gd}	$V_{GS} = 10V$	-	3	-	

Fig.1 Gate-Charge Characteristics

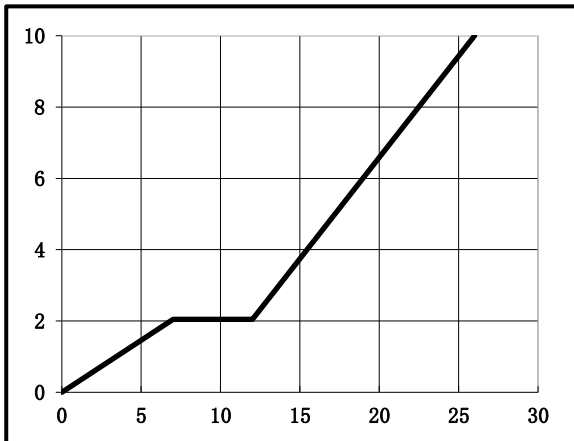


Fig.2 Capacitance Characteristics

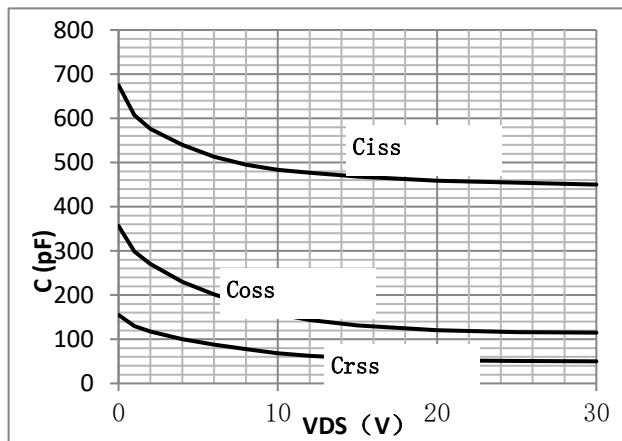


Fig.3 Power Dissipation

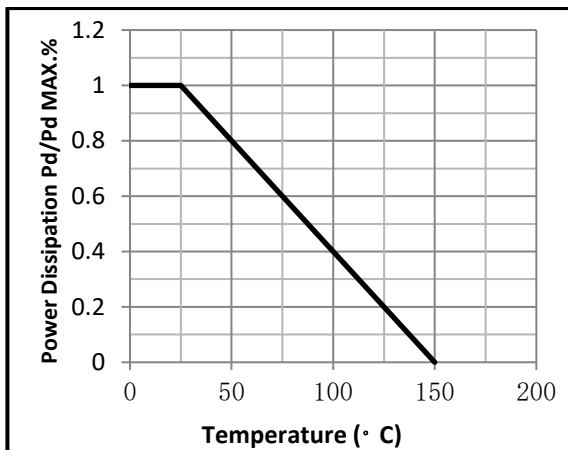


Fig.4 Typical output Characteristics

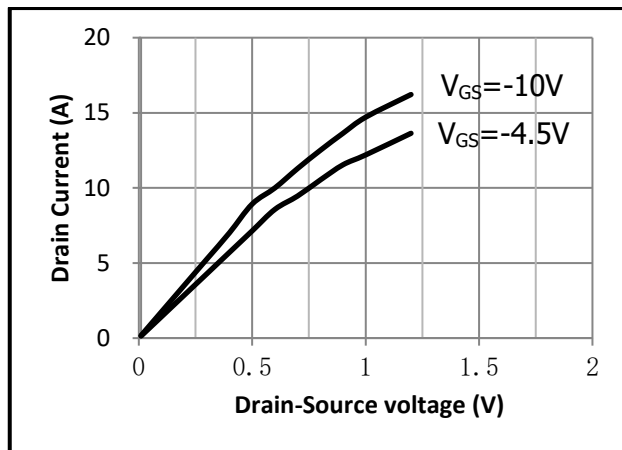


Fig.5 Threshold Voltage V.S Junction Temperature

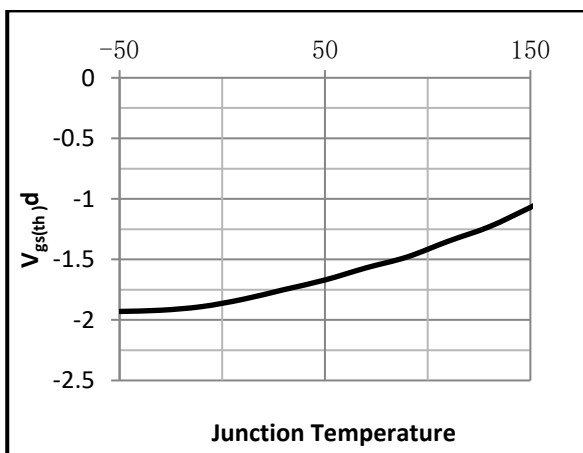


Fig.6 Resistance V.S Drain Current

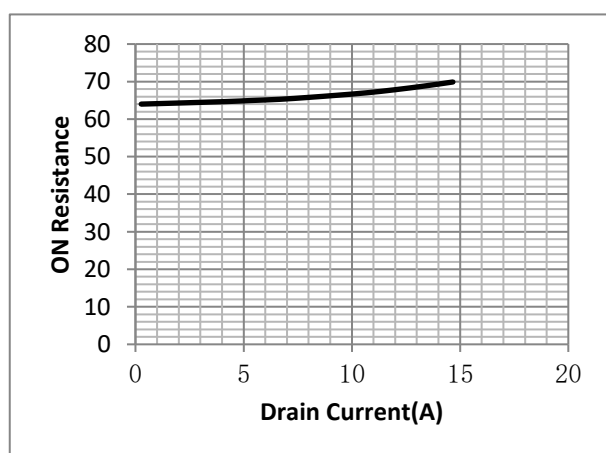




Fig.7 On-Resistance VS Gate Source Voltage

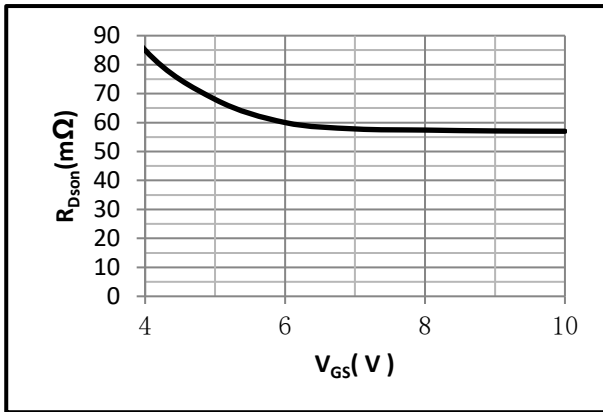
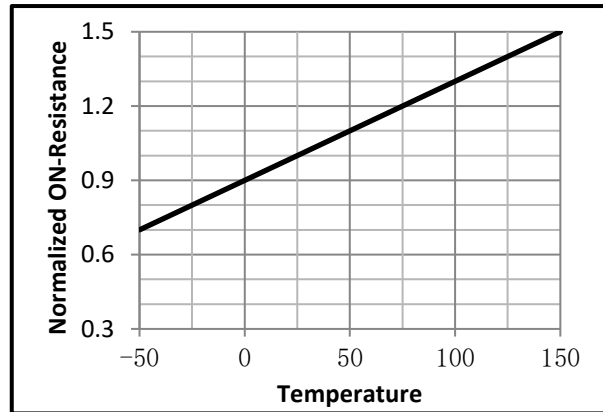


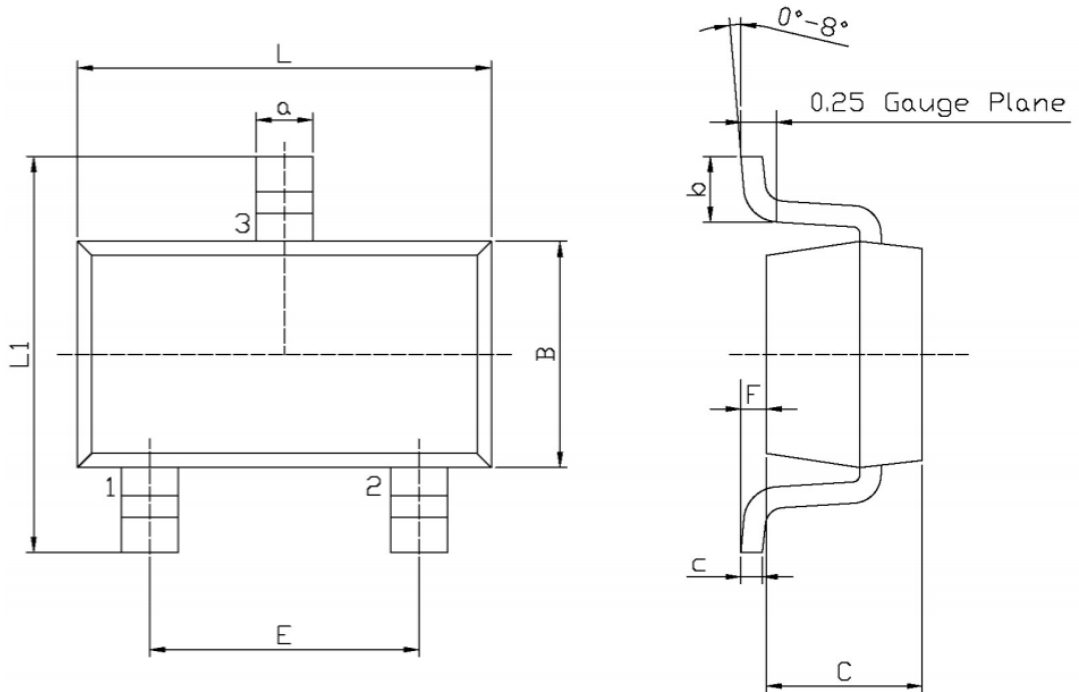
Fig.8 On-Resistance V.S Junction Temperature





• Dimensions (SOT-23)

Unit: mm



Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.82	3.02	a	0.35	0.50
B	1.50	1.70	c	0.10	0.20
C	0.90	1.30	b	0.35	0.55
L1	2.60	3.00	F	0	0.15
E	1.80	2.00			