

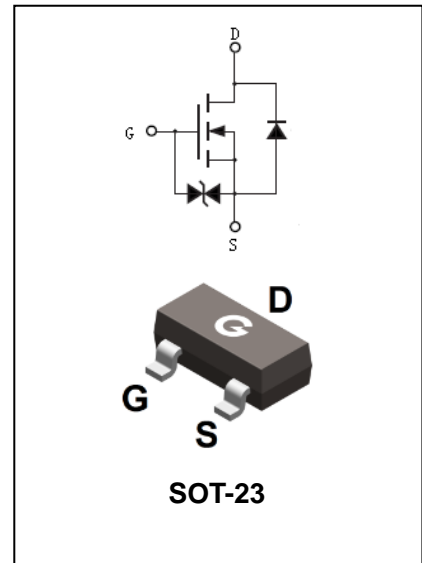
N-Channel Enhancement Mode MOSFET

BL05N60C

FEATURES

- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

HF



APPLICATIONS

- N-channel enhancement mode effect transistor
- Switching application

ORDERING INFORMATION

Type No.	Marking	Package Code
BL05N60C	05N60	SOT-23

MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	60	V
V_{DGR}	Drain-Gate voltage($R_{GS} \leq 1\text{M}\Omega$)	60	V
V_{GSS}	Gate -Source voltage - continuous	± 20	V
	-Non Repetitive ($t_p < 50\mu\text{s}$)	± 40	
I_D	Maximum Drain current -continuous	600	mA
	-Pulsed	1600	
P_D	Power Dissipation	350	mW
$R_{\theta JA}$ (NOTE1)	Thermal resistance, Junction-to-Ambient	357	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$ (NOTE1)	Thermal resistance, Junction-to-Case	90	$^\circ\text{C}/\text{W}$
T_J, T_{stg}	Junction and Storage Temperature	-50 to +150	$^\circ\text{C}$

NOTE1: $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. The value of $R_{\theta JA}$ is measured with device mounted on 1 in2 FR-4 board with 2 oz copper.

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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

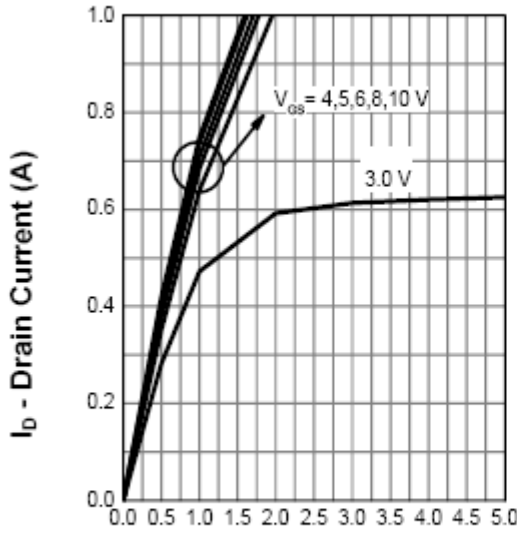
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=10\mu A$	60	70	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	-	2.0	V
Gate-body Leakage	I_{GSS}	Forward $V_{DS}=0V, V_{GS}=20V$	-	-	1	μA
		Reverse $V_{DS}=0V, V_{GS}=-20V$	-	-	-1	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
		$V_{DS}=60V, V_{GS}=0V, T_j=125^\circ C$	-	-	500	
On-state Drain Current	$I_{D(ON)}$	$V_{GS}=10V, V_{DS}\geq 2.0V_{D(ON)}$	0.5	1.0	-	A
Drain-Source on-voltage	$V_{DS(ON)}$	$V_{GS}=10V, I_D=500mA$	-	0.6	3.75	V
		$V_{GS}=5V, I_D=50mA$	-	0.09	1.5	
Forward transconductance	g_{FS}	$V_{DS}=10V, I_D=200mA$	80	-	-	mS
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=500mA,$	-	-	1.7	Ω
		$V_{GS}=5.0V, I_D=50mA$	-	-	2.5	
On-state drain current	$I_{D(ON)}$	$V_{GS}=10V, V_{DS}=7.5V$	0.5	1.0	-	A
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=115mA$	-	0.88	1.2	V
Input capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	20	50	μF
Output capacitance	C_{OSS}		-	11	25	
Reverse transfer capacitance	C_{RSS}		-	2	5	
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 30V, I_D = 0.2A,$ $R_L = 150\Omega, V_{GS} = 10V,$ $R_{GEN} = 25\Omega$	-	6	-	ns
Turn-On rise Time	t_r		-	5	-	
Turn-Off Delay Time	$t_{D(OFF)}$		-	25	-	
Turn-Off Fall Time	t_f		-	15	-	

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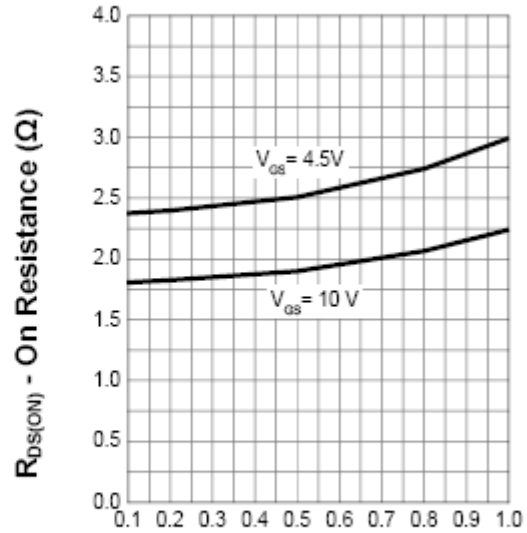
TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Output Characteristics



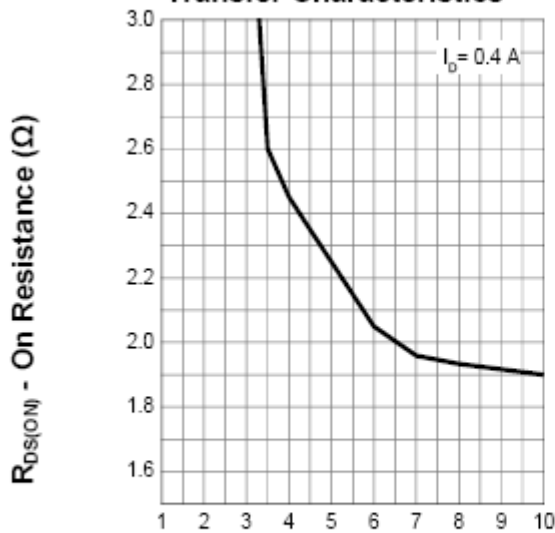
V_{DS} - Drain-Source Voltage (V)

Drain-Source On Resistance



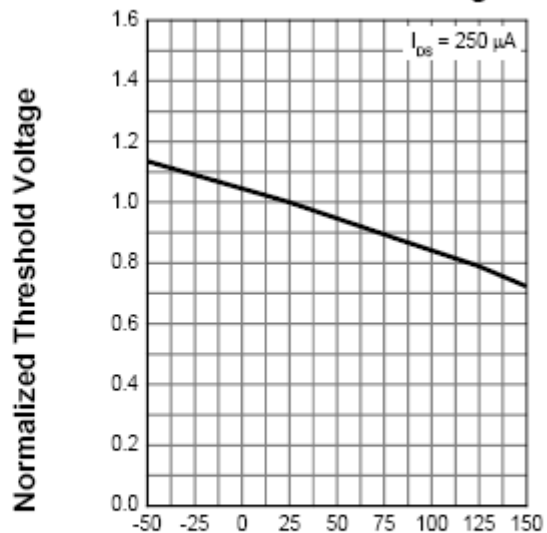
I_D - Drain Current (A)

Transfer Characteristics



V_{GS} - Gate-Source Voltage (V)

Gate Threshold Voltage

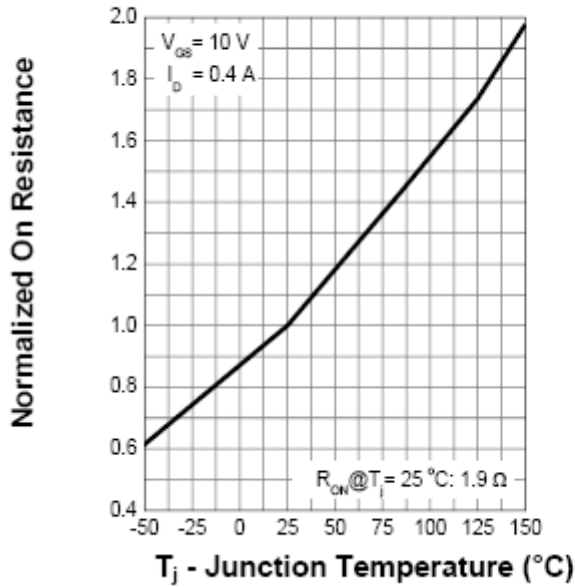


T_j - Junction Temperature ($^\circ\text{C}$)

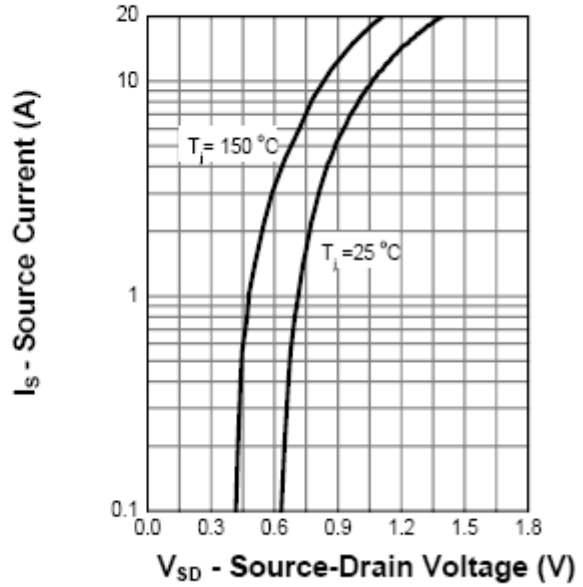
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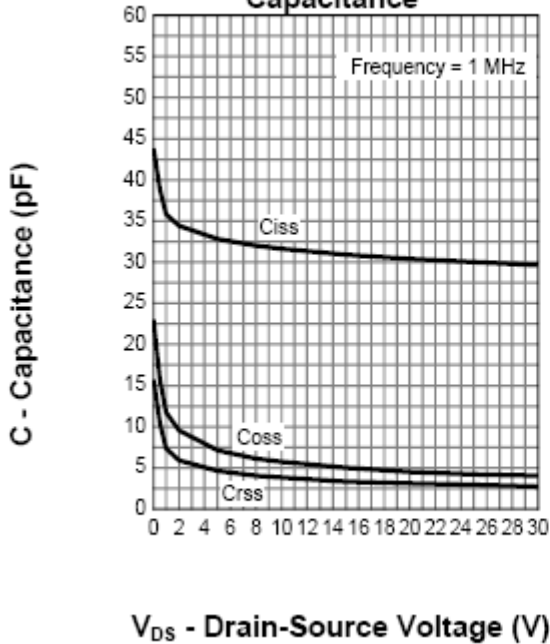
Drain-Source On Resistance



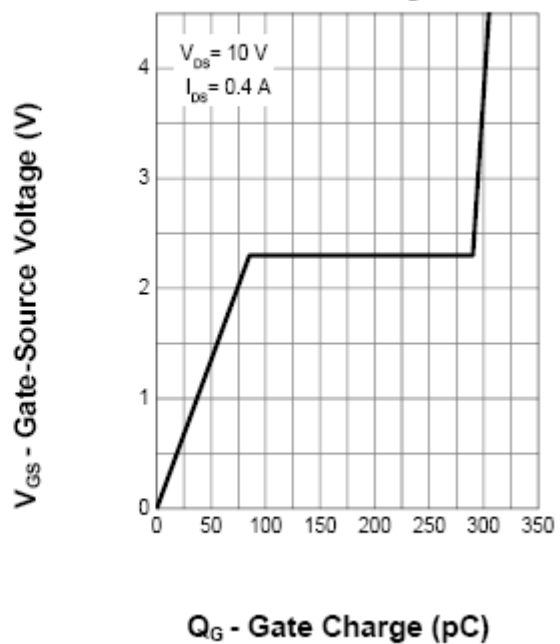
Source-Drain Diode Forward



Capacitance



Gate Charge



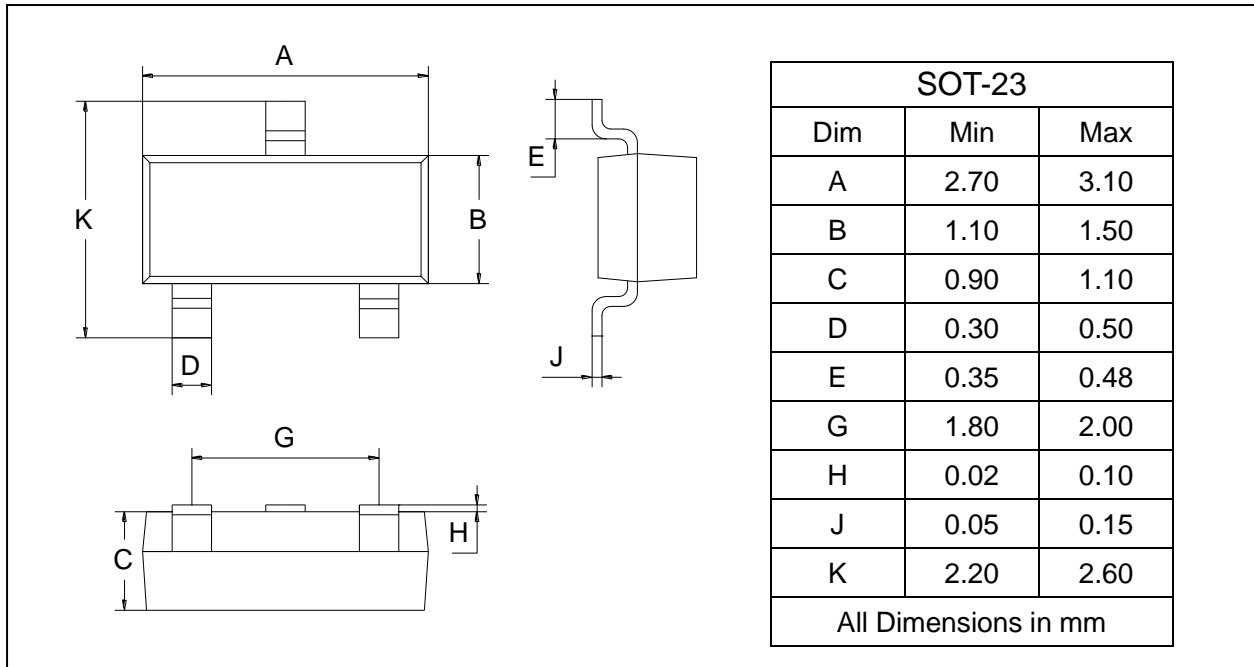
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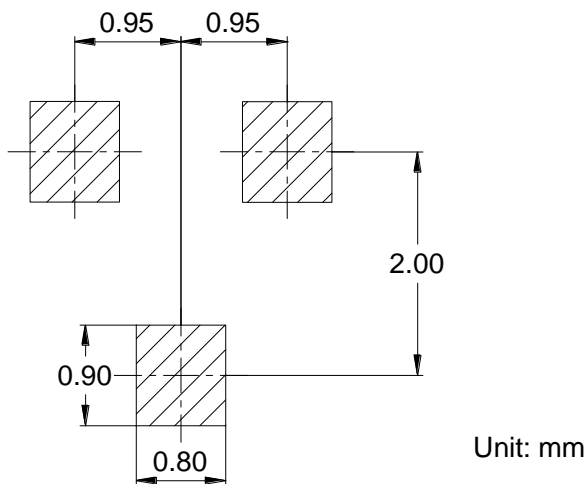
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BL05N60C	SOT-23	3000 pcs / Tape & Reel