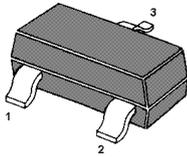
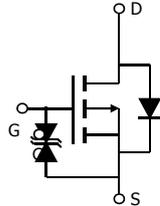


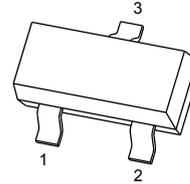
P-CHANNEL MOSFET

SOT-23


MARKING : 65D*

Equivalent Circuit

SOT-23

1. GATE
2. SOURCE
3. DRAIN



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	$9\Omega@-10V$	-0.18 A
	$13\Omega@-4.5V$	

Features

- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired
- ESD Protected

Application

- PWM Applications
- Load Switch
- Power Management

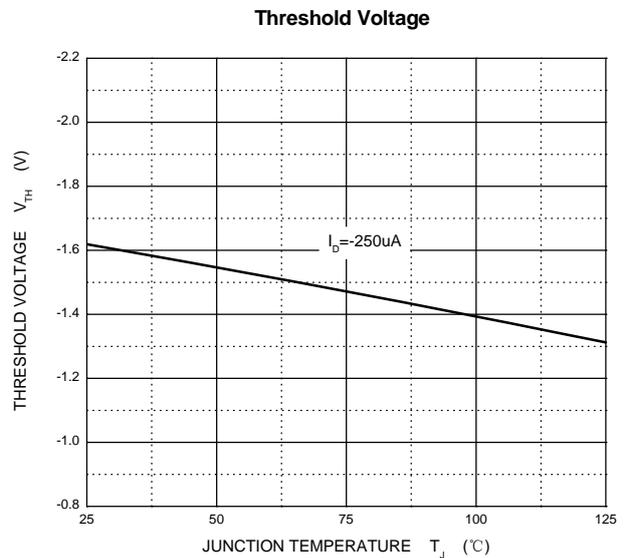
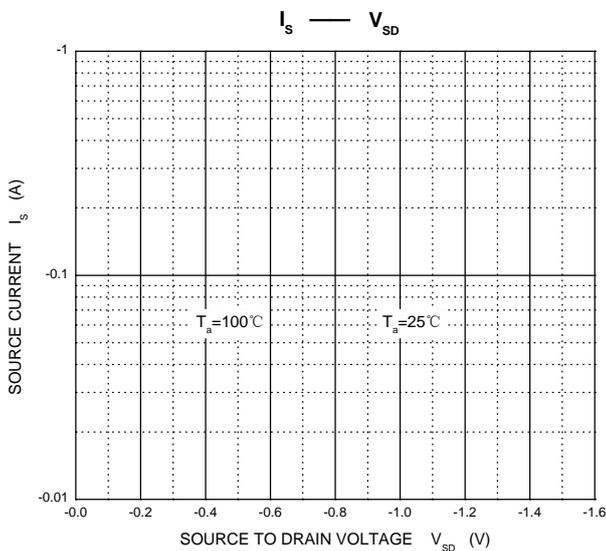
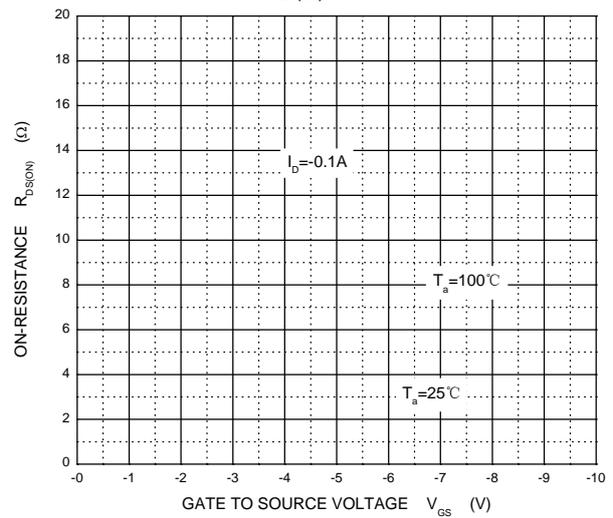
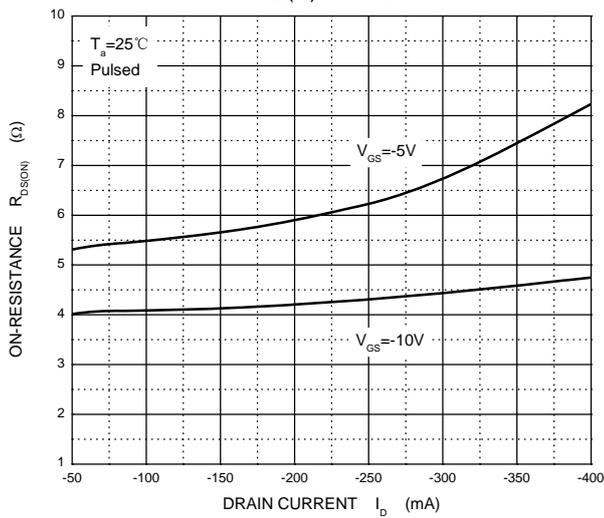
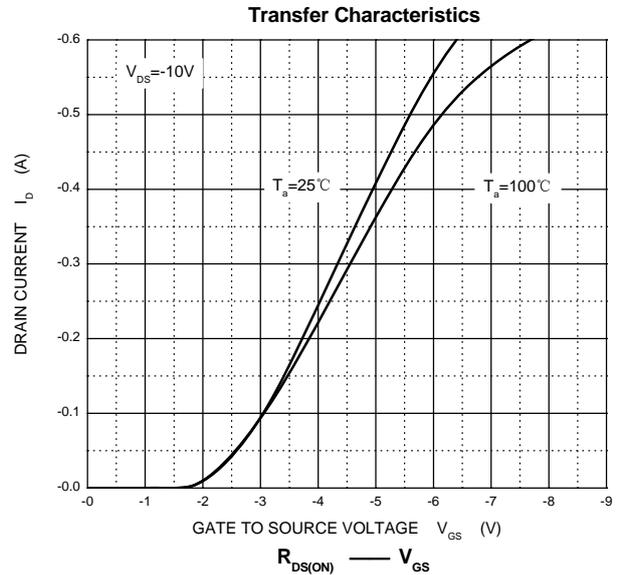
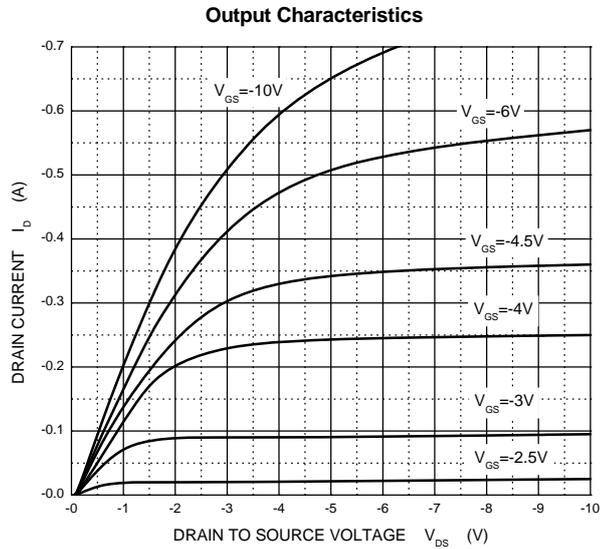
Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-60	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	$T_A = 25^\circ C$	0.18
		$T_A = 100^\circ C$	-0.17
I_{DM}	Pulsed Drain Current ^{note1}	-1	A
P_D	Power Dissipation	$T_A = 25^\circ C$	0.35
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	525	$^\circ C/W$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$

Electrical Characteristics ($T_C=25^\circ\text{C}$ unless otherwise specified)

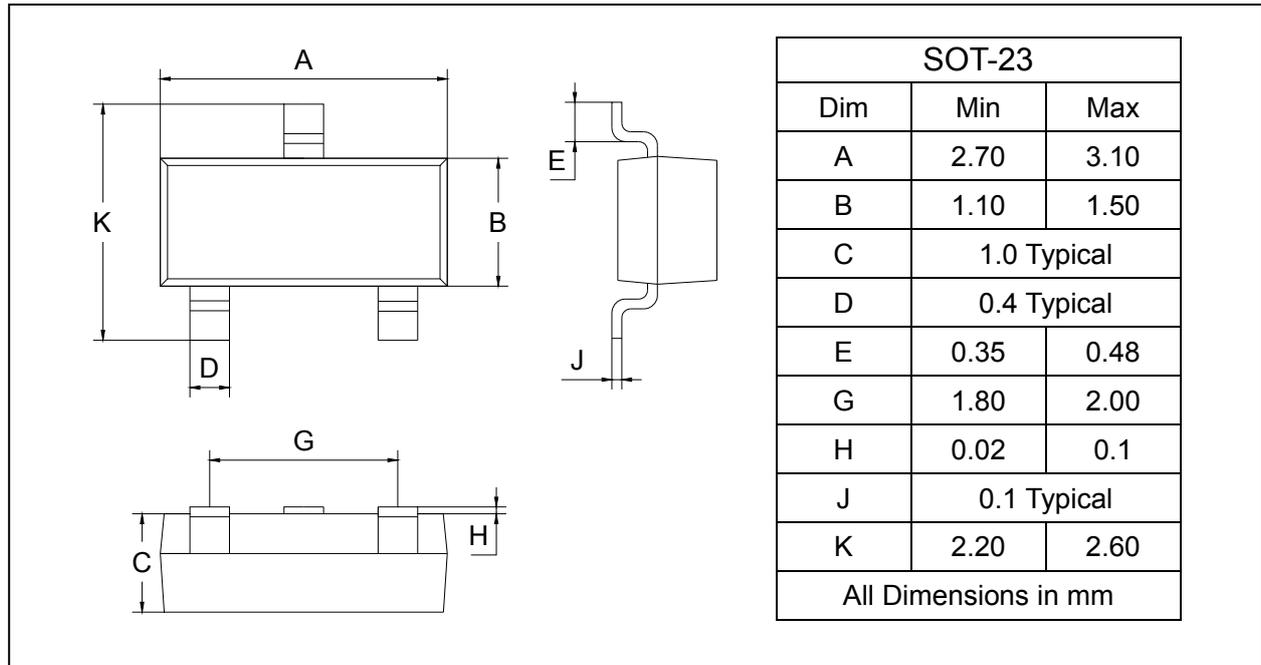
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -60V, V_{GS} = 0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.1	-1.6	-2.2	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -10V, I_D = -0.15A$	-	5.0	9	Ω
		$V_{GS} = -4.5V, I_D = -0.15A$	-	5.7	13	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -30V, V_{GS} = 0V,$ $f = 1.0MHz$	-	19	-	pF
C_{oss}	Output Capacitance		-	5	-	pF
C_{rss}	Reverse Transfer Capacitance		-	3	-	pF
Q_g	Total Gate Charge	$V_{DS} = -30V, I_D = -0.15A,$ $V_{GS} = -10V$	-	0.4	-	nC
Q_{gs}	Gate-Source Charge		-	0.15	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	0.15	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -30V, R_L = 5\Omega,$ $R_{GEN} = 3\Omega, V_{GS} = -4.5V,$	-	2.5	-	ns
t_r	Turn-on Rise Time		-	1.0	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	16	-	ns
t_f	Turn-off Fall Time		-	7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	0.18	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-1	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -2.5A$	-	-	-1.2	V

Typical Characteristics

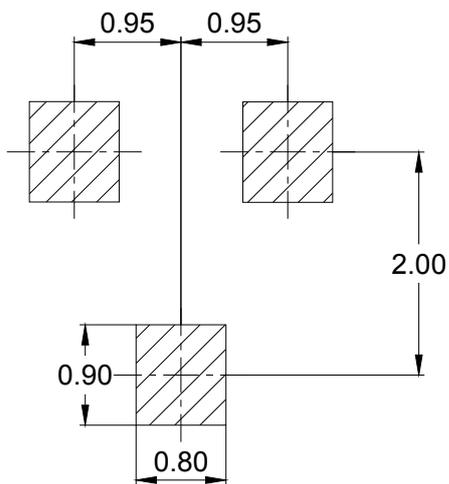


Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



Unit : mm