

**Product Summary**

- $V_{DS} = -30V$ ,  $I_D = -4.1A$   
 $R_{DS(ON)} < 55m\Omega @ V_{GS} = -10V$   
 $R_{DS(ON)} < 85m\Omega @ V_{GS} = -4.5V$
- Advanced Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- Lead free product is acquired

**Application**

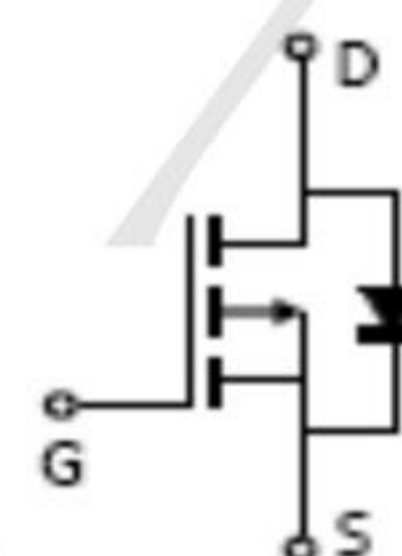
- PWM Applications
- Load Switch
- Power Management

**Package and Pin Configuration**

SOT-23



**Circuit diagram**



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

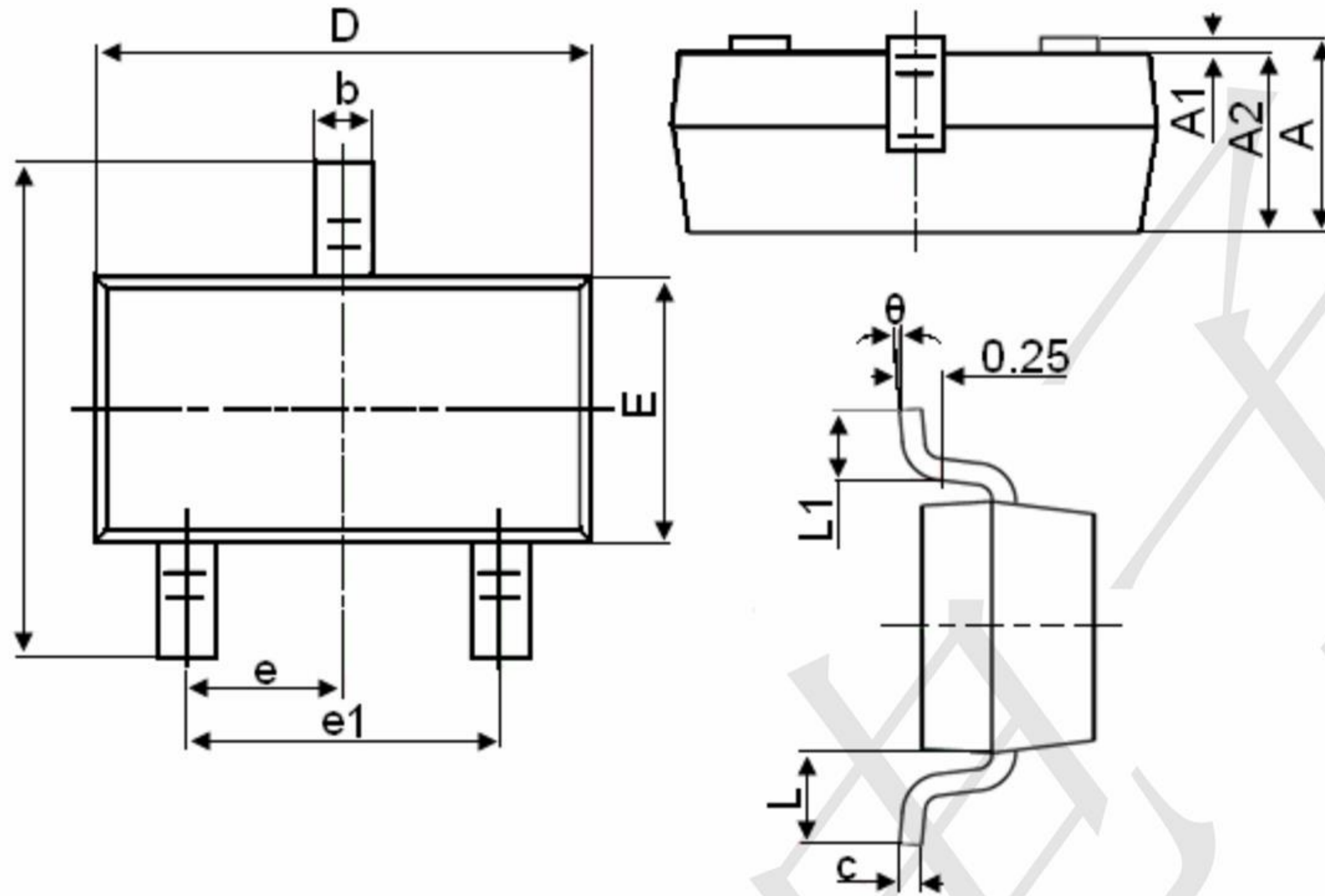
Symbol	Parameter	Max.	Units
$V_{DSS}$	Drain-Source Voltage	-30	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current	$T_A = 25^\circ C$	-4.1
		$T_A = 100^\circ C$	-2.7
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>	-16.4	A
$P_D$	Power Dissipation	$T_A = 25^\circ C$	1.51
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	83	$^\circ C/W$
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ C$

**Electrical Characteristics (  $T_A = 25^\circ\text{C}$  unless otherwise noted )**

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V,$	-	-	-1	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.5	-2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	$V_{GS} = -10V, I_D = -4A$	-	42	55	m $\Omega$
		$V_{GS} = -4.5V, I_D = -3A$	-	62	85	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$	-	580	-	pF
$C_{oss}$	Output Capacitance		-	98	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	74	-	pF
$Q_g$	Total Gate Charge	$V_{DS} = -15V, I_D = -4.1A,$ $V_{GS} = -10V$	-	6.8	-	nC
$Q_{gs}$	Gate-Source Charge		-	1	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	1.4	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -15V, I_D = -1A,$ $V_{GS} = -10V, R_{GEN} = 2.5\Omega$	-	14	-	ns
$t_r$	Turn-on Rise Time		-	61	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	19	-	ns
$t_f$	Turn-off Fall Time		-	10	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	-4.1	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-16.4	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -4.1A$	-	-0.8	-1.2	V



**SOT-23 Package Information**



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
$\theta$	0°	8°

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