

### 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

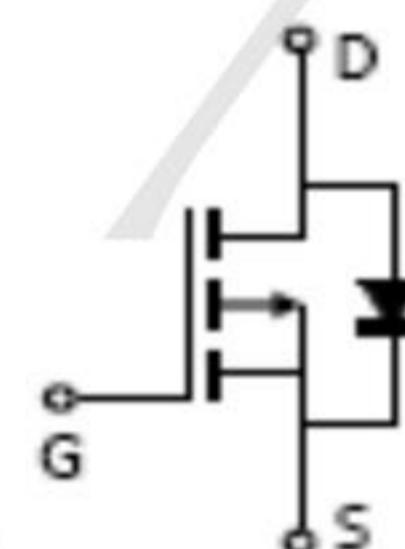
- PWM Applications
- Load Switch
- Power Management

### Package and Pin Configuration

SOT-23



Circuit diagram



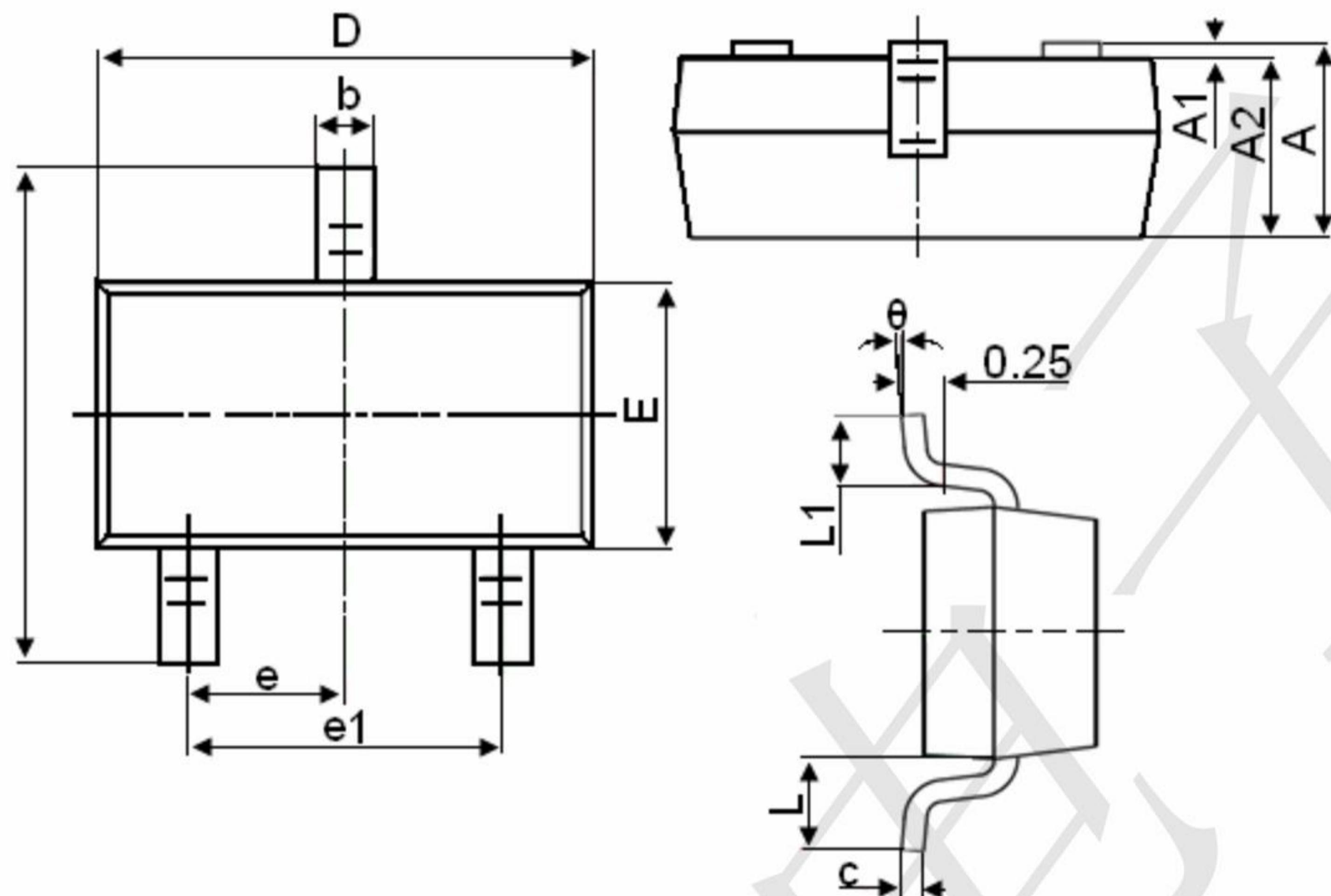
### Absolute Maximum Ratings ( $T_A = 25^\circ C$ unless otherwise noted)

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	A
		$T_A = 100^\circ C$	-2.7	A
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>		-16.4	A
$P_D$	Power Dissipation	$T_A = 25^\circ C$	1.51	W
$R_{\theta JA}$	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 Characteristics</b>						
$V_{(\text{BR})\text{DSS}}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	-30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$ ,	-	-	-1	$\mu\text{A}$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(\text{th})}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-1.0	-1.5	-2.5	V
$R_{DS(\text{on})}$ note2	Static Drain-Source on-Resistance	$V_{GS} = -10\text{V}, I_D = -4\text{A}$	-	42	55	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}, I_D = -3\text{A}$	-	62	85	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	-	580	-	pF
$C_{oss}$	Output Capacitance		-	98	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	74	-	pF
$Q_g$	Total Gate Charge	$V_{DS} = -15\text{V}, I_D = -4.1\text{A}, V_{GS} = -10\text{V}$	-	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	$V_{DD} = -15\text{V}, I_D = -1\text{A}, V_{GS} = -10\text{V}, R_{GEN} = 2.5\Omega$	-	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	$V_{GS} = 0\text{V}, I_s = -4.1\text{A}$	-	-0.8	-1.2	V

**SOT-23 Package Information**



<b>Symbol</b>	<b>Dimensions in Millimeters</b>	
	<b>MIN.</b>	<b>MAX.</b>
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
θ	0°	8°