

Product Summary

BV_{DSS}	20V
$R_{DS(ON)}$	52 m Ω
I_D	2.4A

Application

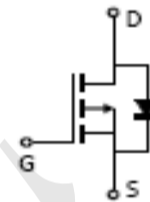
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

Package and Pin Configuration

SOT-23



Circuit diagram



Marking: 304P

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

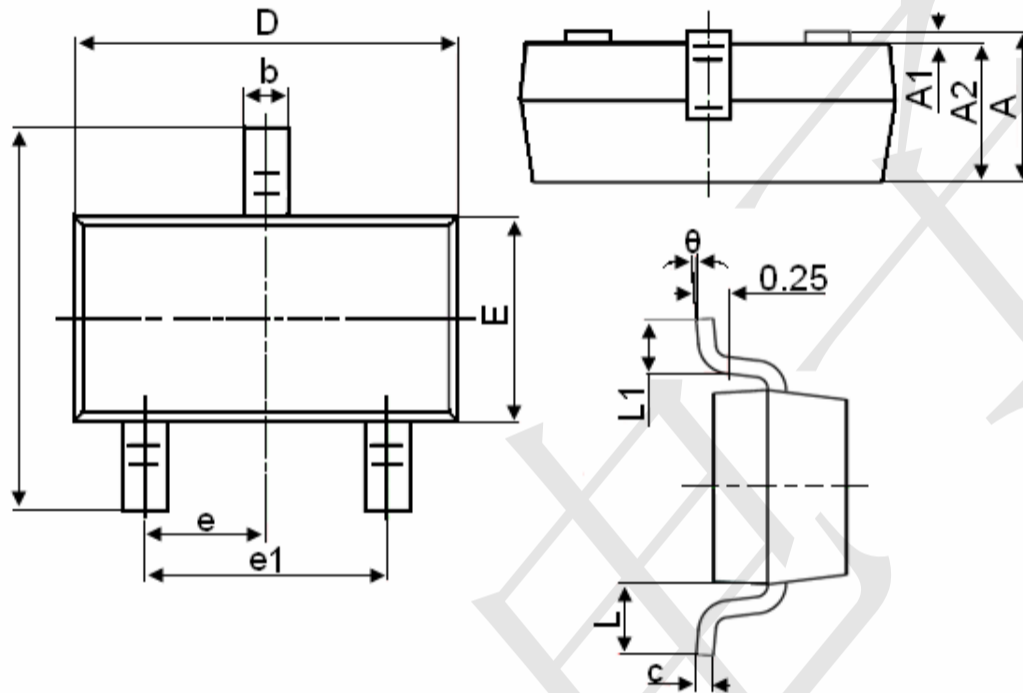
Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	± 8	V
I_D	Continuous Drain Current $T_A = 25^\circ\text{C}$	-2.4	A
I_{DM}	Pulsed Drain Current ^{note1}	-10	A
P_D	Power Dissipation $T_A = 25^\circ\text{C}$	1	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	$^\circ\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -20V, V_{GS} = 0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 8V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -4.5V, I_D = -2.5A$	-	-	52	m Ω
		$V_{GS} = -2.5V, I_D = -1.8A$	-	-	70	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -10V, V_{GS} = 0V,$ $f = 1.0MHz$	-	-	1248	pF
C_{oss}	Output Capacitance		-	-	244	pF
C_{rss}	Reverse Transfer Capacitance		-	-	31	pF
Q_g	Total Gate Charge	$V_{DS} = -10V, I_D = -2.5A,$ $V_{GS} = -4.5V$	-	-	2.9	nC
Q_{gs}	Gate-Source Charge		-	-	0.45	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	-	0.75	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -10V, R_L = 5\Omega,$ $R_{GEN} = 3\Omega, V_{GS} = -4.5V,$	-	9.8	-	ns
t_r	Turn-on Rise Time		-	4.9	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	20.5	-	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		-	-	-2.4	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-10	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -2.5A$	-	-	-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
θ	0°	8°