

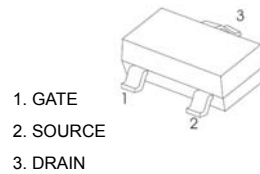
FEATURES

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

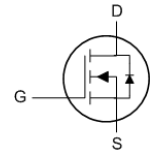
V_{DSS} 100 V
 I_D 0.17 A
 $R_{DS(ON)}$ 10.0 Ω

SAW

SOT-23



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
N-MOSFET			
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (note 1)	I_D	0.17	A
Pulsed Drain Current ($t_p=10\mu\text{s}$)	I_{DM}	0.68	A
Continuous Source-Drain Diode Current	I_S	0.17	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^\circ\text{C}$

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

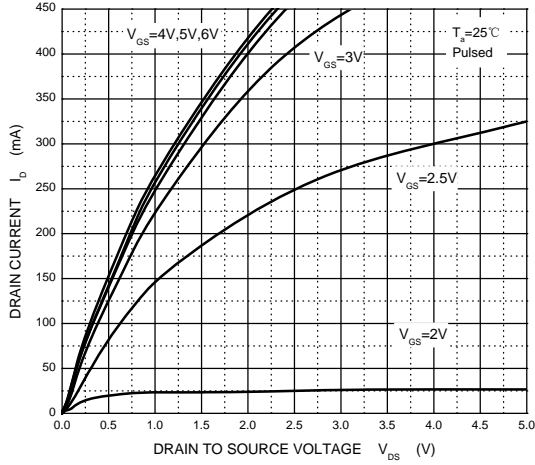
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V$			10	nA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 50	nA
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1		2.8	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.17A$			10	Ω
		$V_{GS} = 10V, I_D = 0.17A$			6	Ω
Forward transconductance(note 2)	g_{FS}	$V_{DS} = 10V, I_D = 170mA$	80			mS
Diode forward voltage	V_{SD}	$I_S = 340mA, V_{GS} = 0V$			1.3	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		29	60	pF
Output Capacitance	C_{oss}			10	15	pF
Reverse Transfer Capacitance	C_{rss}			2	6	pF
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 30V,$ $I_D = 2.8A, R_{GEN} = 50\ \Omega$			8	ns
Turn-on rise time	t_r				8	ns
Turn-off delay time	$t_{d(off)}$				13	ns
Turn-off fall time	t_f				16	ns
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 0.22A,$ $V_{GS} = 10V$		1.4	2	nC
Gate-Source Charge	Q_{gs}			0.15	0.25	nC
Gate-Drain Charge	Q_{gd}			0.2	0.4	nC

Notes :

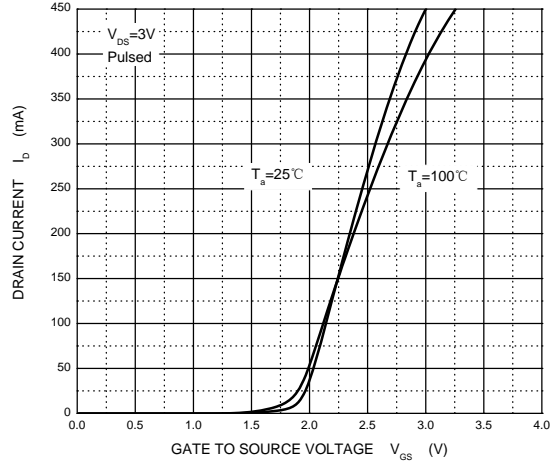
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse width=300 μs , duty cycle $\leq 2\%$.
3. Switching characteristics are independent of operating junction temperature.
4. Granted by design, not subject to producing.

RATING AND CHARACTERISTIC CURVES

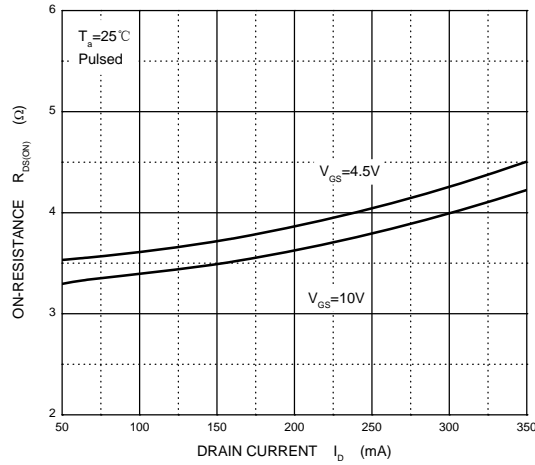
Output Characteristics



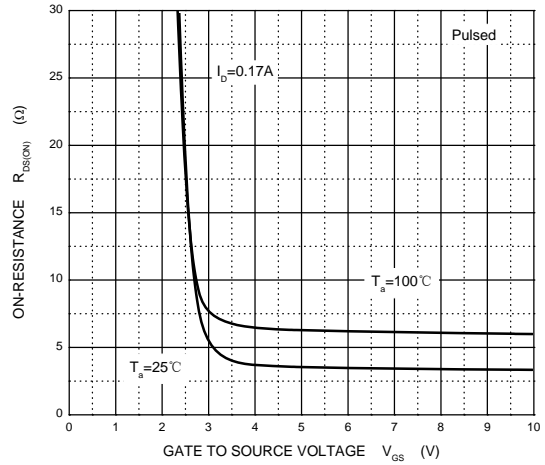
Transfer Characteristics



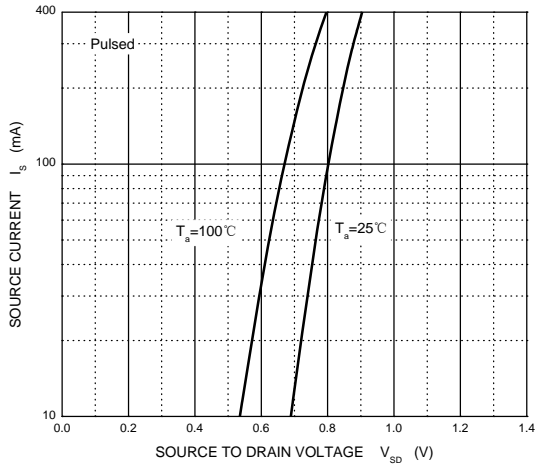
$R_{DS(ON)}$ — I_D



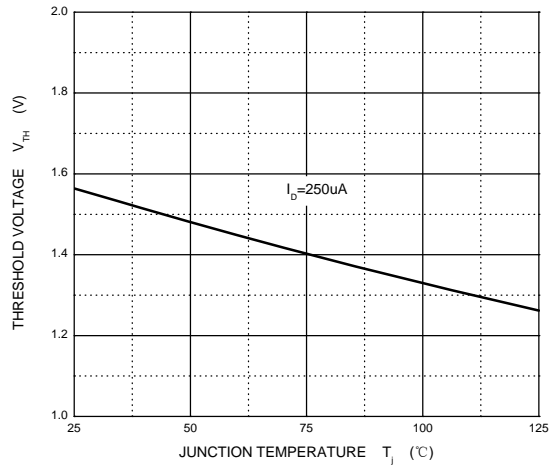
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



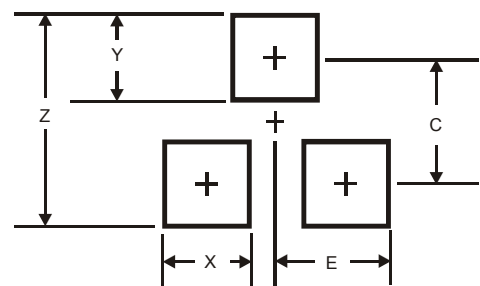
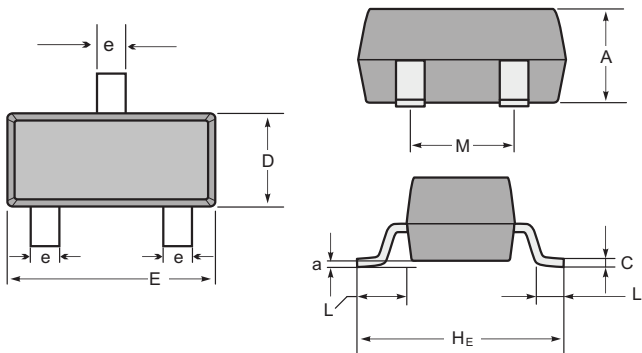
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23

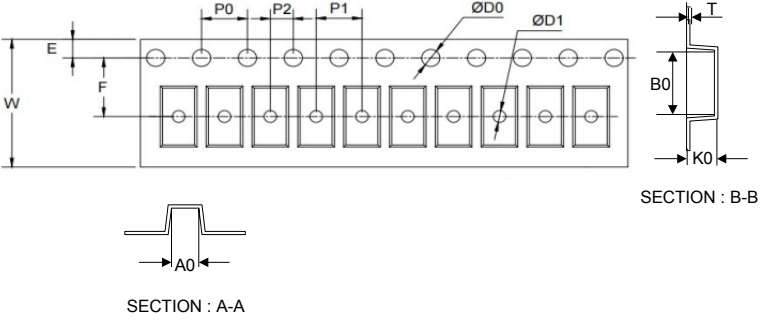
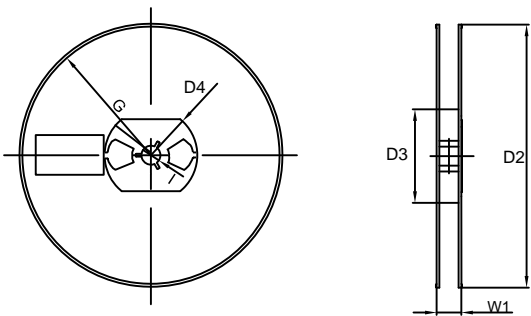


SOT-23 mechanical data

UNIT	A	C	D	E	He	e	M	L	L ₁	a	
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape	Symbol	Dimension (mm)	
	P0	4.00±0.10	
	P1	4.00±0.10	
	P2	2.00±0.10	
	D0	1.55±0.10	
	D1	1.05±0.10	
	E	1.55±0.10	
	F	3.60±0.10	
	W	8.00±0.10	
	A0	3.80±0.20	
	B0	3.25±0.20	
	K0	1.45±0.10	
	T	0.25±0.05	
	7" Reel	D2	178.0±3.0
		D3	55Min.
D4		R24.0±3.0	
G		R82.0±3.0	
I		13.0±2.0	
W1		11.0±3.0	
Quantity: 3000PCS			