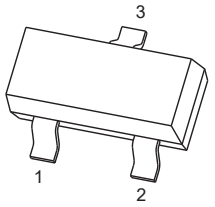
20V N-Chann el MOSFET

Product Summary

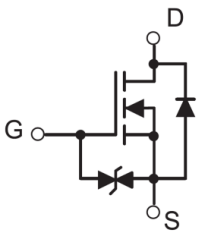
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	190mΩ@4.5V	0.75A
	260mΩ@2.5V	
	390mΩ@1.8V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



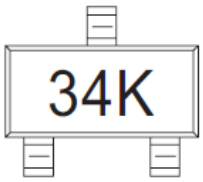
Feature

- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Expsemi electronics

Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current(1)	I_D	0.75	A
Pulsed Drain Current (t_P=10μs)	I_{DM}	1.8	A
Power Dissipation(1)	P_D	0.35	W
Thermal Resistance from Junction to Ambient(1)	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃
Lead Temperature for Soldering Purposes(1/8” duration for 10 s)	T_L	260	℃

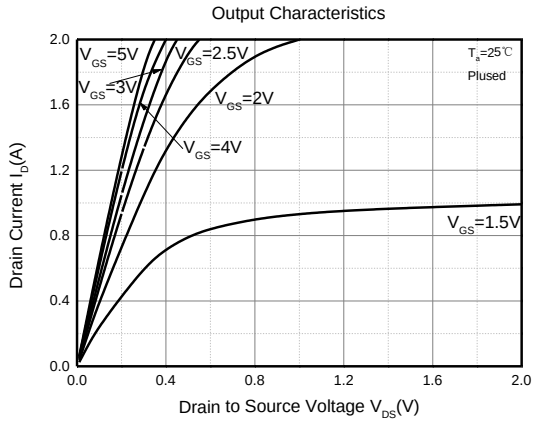
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

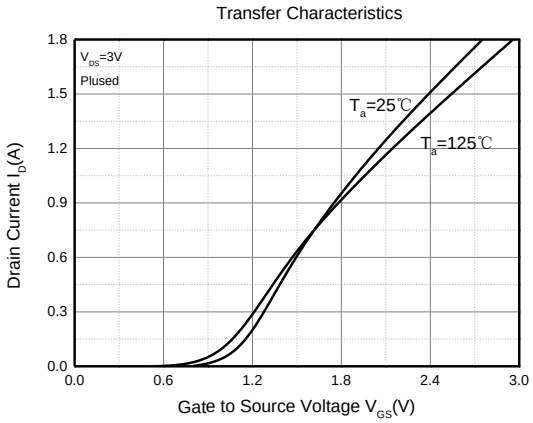
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±20	μA
Gate threshold voltage(2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.35	0.75	1.1	V
Drain-source on-resistance(2)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.65A		190	260	mΩ
		V_{GS} =2.5V, I_D =0.55A		260	360	
		V_{GS} =1.8V, I_D =0.45A		390	590	
Forward tranconductance(2)	g_{FS}	V_{DS} =10V, I_D =0.8A		1.6		S
Dynamic characteristics(4)						
Input Capacitance	C_{iss}	V_{DS} =16V,V_{GS} =0V,f =1MHz		79	120	pF
Output Capacitance	C_{oss}			13	20	
Reverse Transfer Capacitance	C_{rss}			9	15	
Switching Characteristics(4)						
Turn-on delay time(3)	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=10V, I_D =500mA,R_{GEN}=10Ω		6.7		ns
Turn-on rise time(3)	t_r			4.8		
Turn-off delay time(3)	$t_{d(off)}$			17.3		
Turn-off fall time(3)	t_f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	I_S=0.15A, V_{GS} = 0V			1.2	V

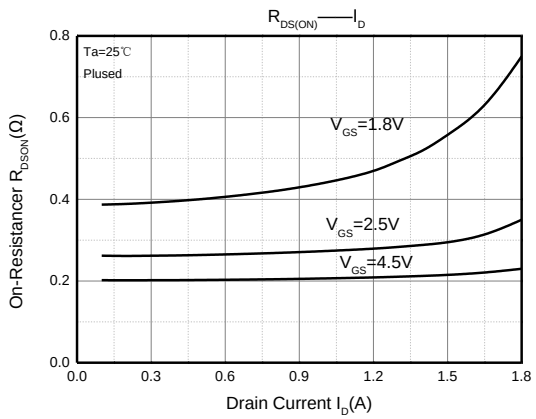
Notes:

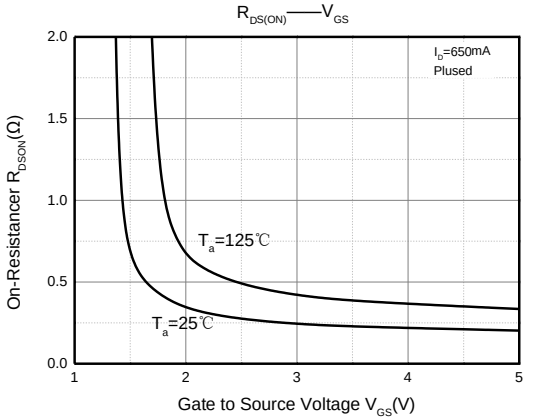
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producting.

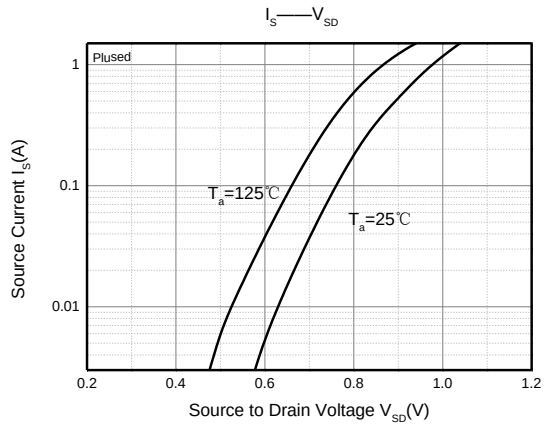
Typical Characteristics

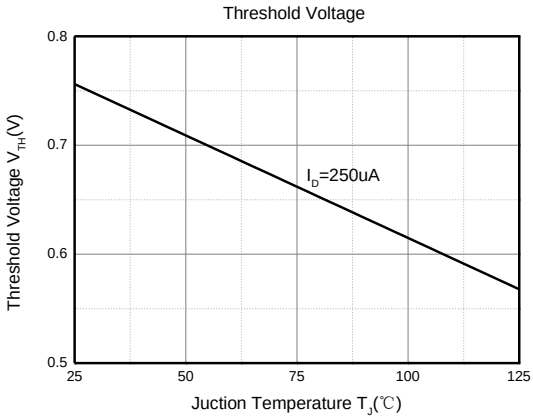




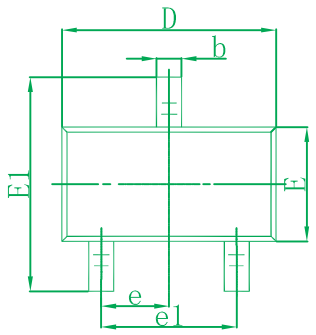


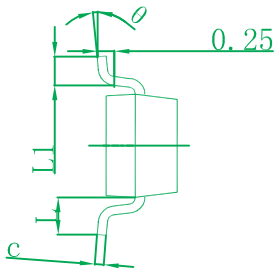


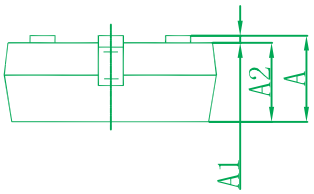




SOT-23 Package Information

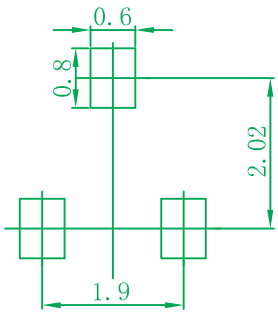






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.150	0.035	0.045
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.050	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.360 REF		0.014 REF	
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

Ordering information

Device	Package	Shipping
EP3134T	SOT-23	3000/Tape&Reel(7inches)