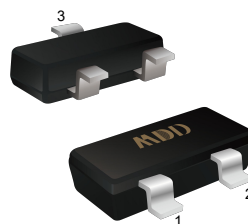


SOT-23

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	4.7Ω@10V	-200mA
	5.7Ω@4.5V	



1. Gate
2. Source
3. Drain

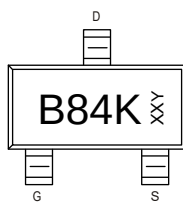
Features

- Trench Power LV MOSFET technology
- Low $R_{DS(on)}$
- Low Gate Charge
- ESD Protected up to 2kV (HBM)

Application

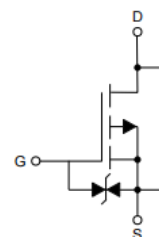
- Video monitor
- Power management

Marking



XXY:Date Code

Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-200	mA
Pulsed Drain Current (Note 1)	I_{DM}	800	mA
Power Dissipation(Note 2)	P_D	285	mW
Thermal Resistance from Junction to Ambient(Note 2)	$R_{\theta JA}$	347	$^{\circ}C/W$
Junction Temperature and Storage Temperature	T_J, T_{stg}	-50 ~150	$^{\circ}C$

Notes: Stresses exceeding Maximum Ratings may damage the device.

Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied.

Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Ta = 25°C unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60	--	--	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-60V, V_{GS}=0V$	--	--	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 10	μA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.1	-1.6	-2.2	V
$R_{DS(ON)}$	Drain-Source On-State Resistance(Note 3)	$V_{GS}=-10V, I_D=-150mA$	--	3.7	4.7	Ω
		$V_{GS}=-4.5V, I_D=-100mA$	--	4.7	5.7	Ω

Dynamic Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
C_{iss}	Input Capacitance	$V_{DS}=-30V$ $V_{GS}=0V$ $f=1MHz$	--	35	--	pF
C_{oss}	Output Capacitance		--	35	--	pF
C_{rss}	Reverse Transfer Capacitance		--	5	--	pF
Q_g	Total Gate Charge	$V_{DS}=-30V$ $V_{GS}=-10V$ $I_D=-150mA$	--	1.8	--	nC
Q_{gs}	Gate Source Charge		--	0.5	--	nC
Q_{gd}	Gate Drain Charge		--	0.18	--	nC

Switching Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
$t_{d(on)}$	Turn on Delay Time	$V_{DS}=-30V$ $V_{GS}=-4.5V$ $I_D=-150mA$ $R_G=2.5\Omega$	--	8.6	--	ns
t_r	Turn on Rise Time		--	20	--	ns
$t_{d(off)}$	Turn Off Delay Time		--	14	--	ns
t_f	Turn Off Fall Time		--	77	--	ns

Source Drain Diode Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
I_{SD}	Source drain current(Body Diode)	$T_A=25^\circ C$	--	--	-200	mA
V_{SD}	Drain-Source Diode Forward Voltage	$I_S=-200mA, V_{GS}=0V$	--	--	-1.2	V

- Notes:**
- 1.Pulse width limited by maximum allowable junction temperature
 - 2.The value of P_D & $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.Copper, double sided, in a still air environment with $T_a=25^\circ C$.
 - 3.Pulse test ; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

■ Typical Performance Characteristics

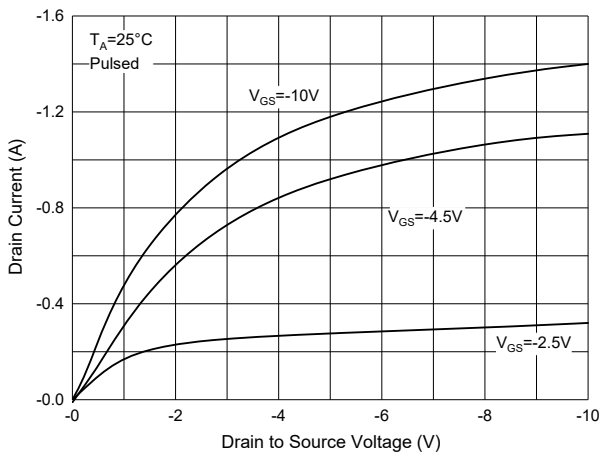


Figure1. Output Characteristics

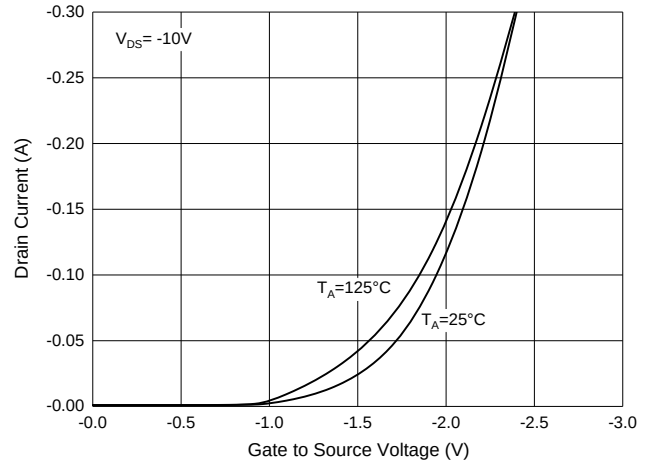


Figure2. Transfer Characteristics

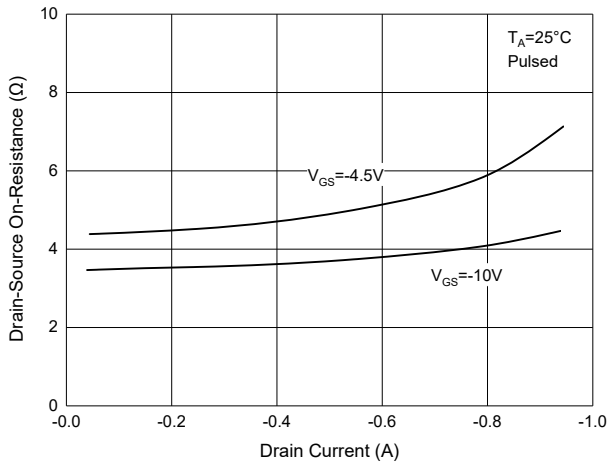


Figure3. Drain-Source on Resistance

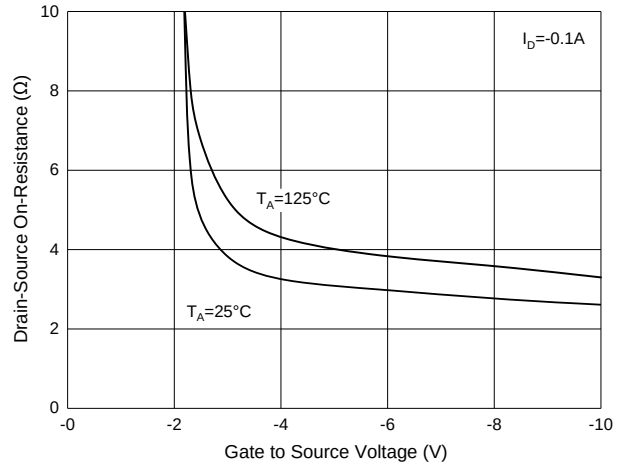


Figure4. Drain-Source on Resistance

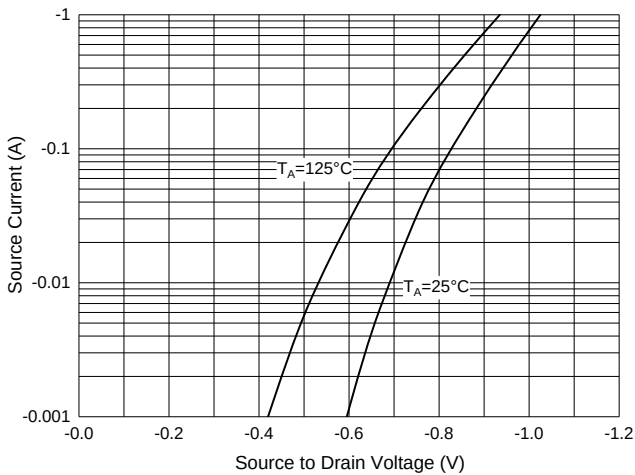


Figure5. Diode Forward Voltage vs. current

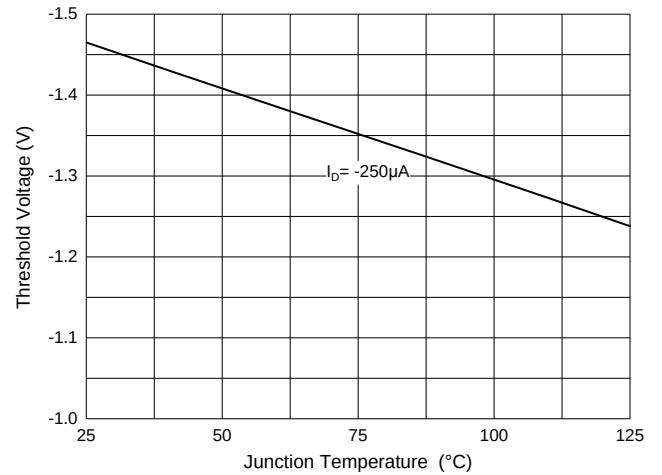
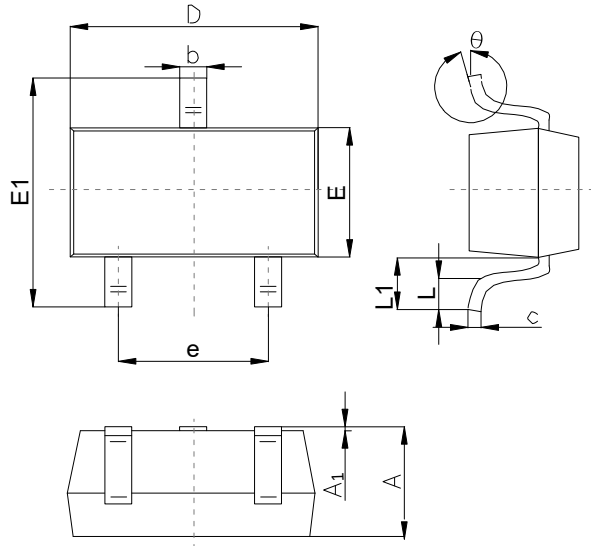


Figure6. Gate Threshold vs. Junction Temperature

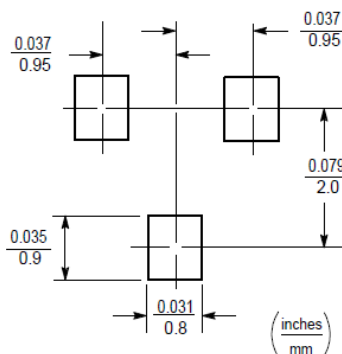
Outline Drawing

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.65		1.40
A1	0.00		0.20
b	0.30		0.55
c	0.08		0.20
D	2.70		3.10
E	1.15		1.65
E1	2.10		2.80
e	1.70		2.10
L	0.15		0.50
L1	0.35		0.70
θ	0°		12°

Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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