

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-60V	4.2Ω@-10V	-0.13A
	4.5Ω@-4.5V	

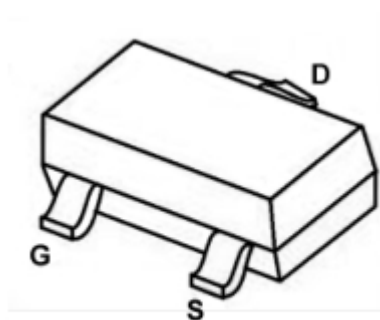
## Feature

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- ESD Protected

## Application

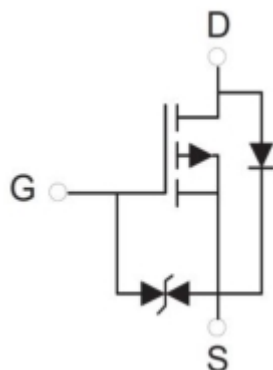
- DC-DC converters
- load switching
- power management in portable
- battery-powered products

## Package

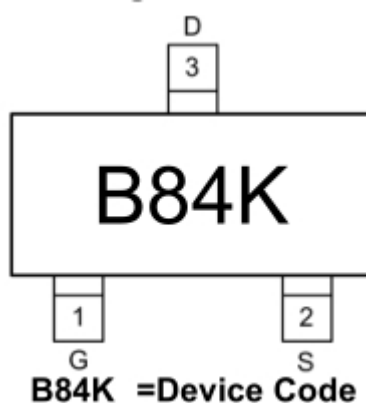


**SOT-323**

## Circuit diagram



## Marking



## Absolute maximum ratings

(T<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	-60	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	-0.13	A
Plused Drain Current@tp<10μs	I <sub>DM</sub>	-0.52	A
Power Dissipation	P <sub>D</sub>	0.2	W
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	625	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55~ +150	°C

## Electrical characteristics

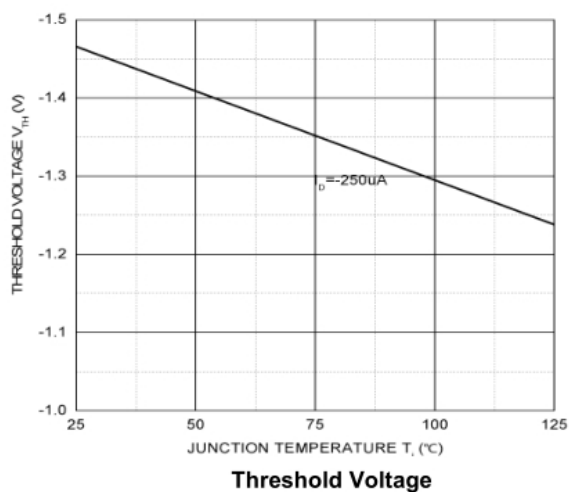
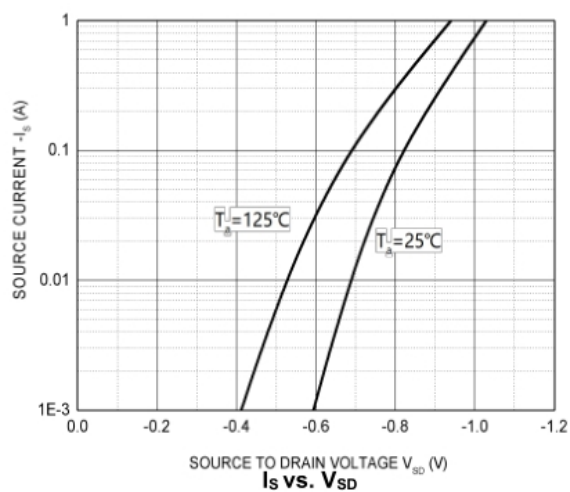
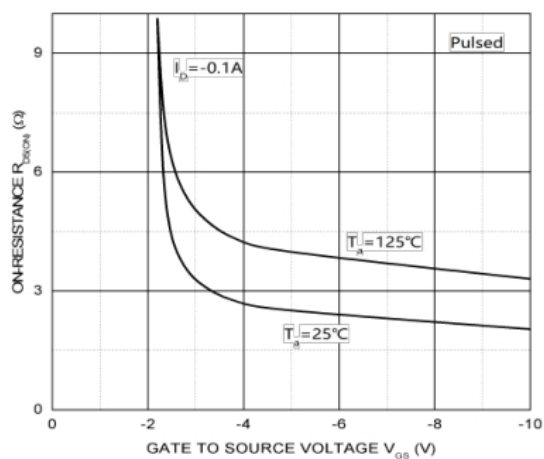
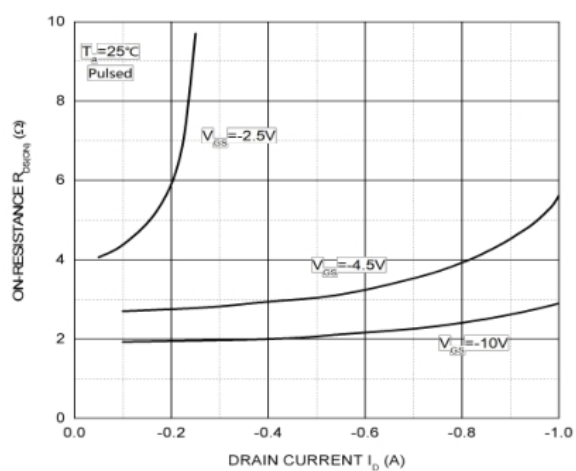
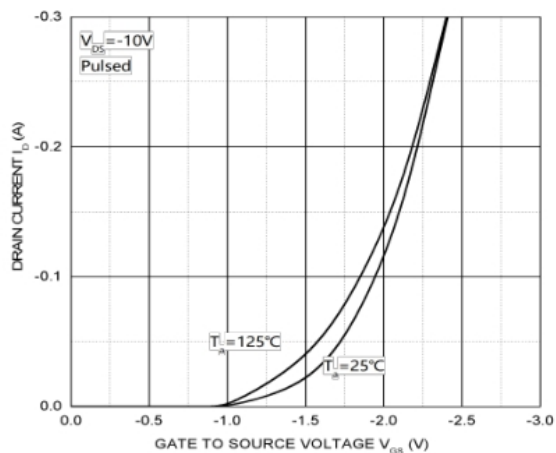
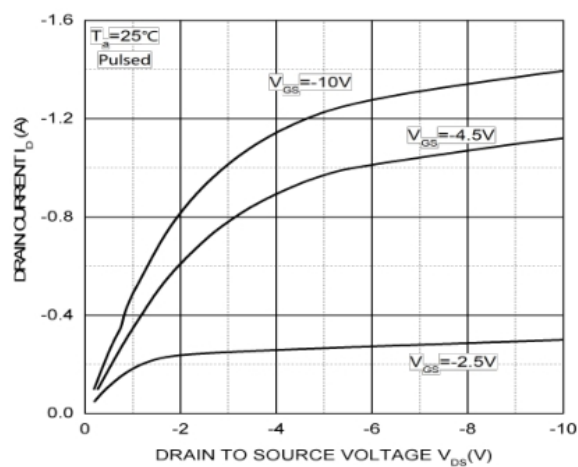
(T<sub>A</sub>=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Drain Leakage Current	$I_{DSS}$	$V_{DS} = -48V, V_{GS} = 0V$			-1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Gate threshold voltage <sup>3)</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.8	-1.5	-2.5	V
Drain-source on-resistance <sup>3)</sup>	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -0.15A$		4.2	6	$\Omega$
		$V_{GS} = -4.5V, I_D = -0.15A$		4.5	7	
Dynamic characteristics <sup>4)</sup>						
Input Capacitance	$C_{iss}$	$V_{DS} = -5V, V_{GS} = 0V,$ $f = 1MHz$		30		pF
Output Capacitance	$C_{oss}$			10		
Reverse Transfer Capacitance	$C_{rss}$			5		
Switching Characteristics <sup>4)</sup>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V, R_L = 50\Omega,$ $I_D = -2.5A$		2.5		ns
Turn-on rise time	$t_r$			1		
Turn-off delay time	$t_{d(off)}$			16		
Turn-off fall time	$t_f$			8		
Source-Drain Diode Characteristics						
Diode Forward voltage	$V_{SD}$	$V_{GS} = 0V, I_S = -0.5A$			-1.3	V

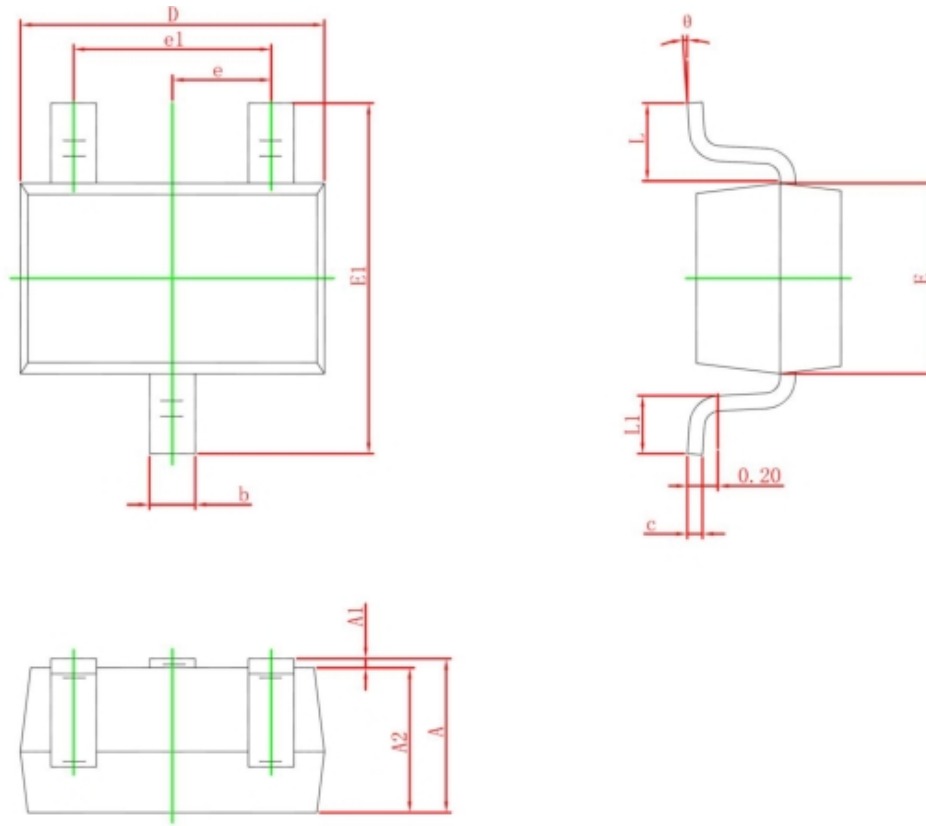
### Notes:

- 1.Repetitive rating: Pulse width limited by junction temperature.
- 2.Surface mounted on FR4 board, t ≤ 10s.
- 3.Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 4.Guaranteed by design, not subject to production.

## Typical Characteristics



## SOT-323 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
$\theta$	0°	8°	0°	8°