Product Summary

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

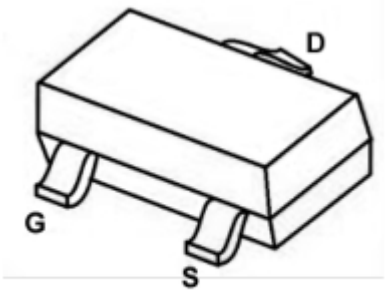
Feature

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

Application

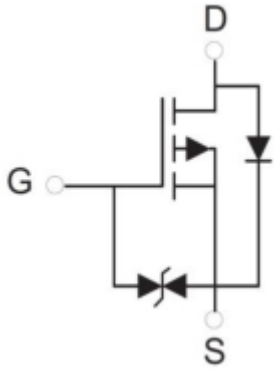
- DC-DC converters
- load switching
- power management in portable
- battery-powered products

Package

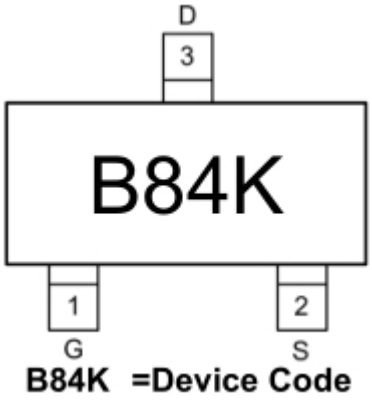


SOT-523

Circuit diagram



Marking



B84K =Device Code

Absolute maximum ratings

(T_a=25℃ 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	-0.13	A
Plused Drain Current@tp<10μs	I_{DM}	-0.52	A
Power Dissipation	P_D	0.2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical characteristics

(T_A=25℃, 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 =-250μA	-60			V
Drain Leakage Current	I_{DSS}	V_{DS} =-48V,V_{GS} = 0V			-1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±10	uA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.8	-1.5	-2.5	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-0.15A		4.2	6	Ω
		V_{GS} =-4.5V, I_D =-0.15A		4.5	7	
Dynamic characteristics[4]						
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[4]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15 V,R_L=50Ω, 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:

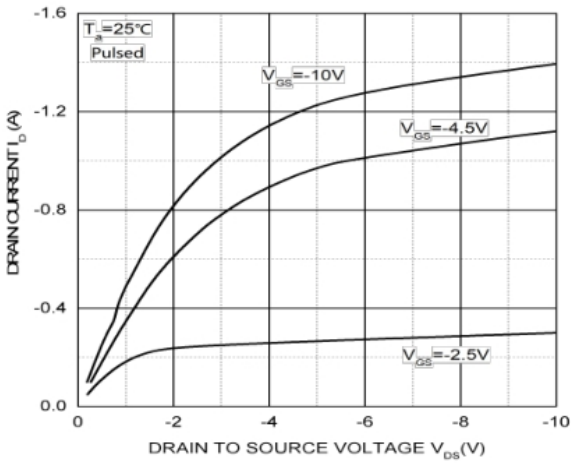
1.Repetitive rating: Pulse width limited by junction temperature.

2.Surface mounted on FR4 board, t≤10s.

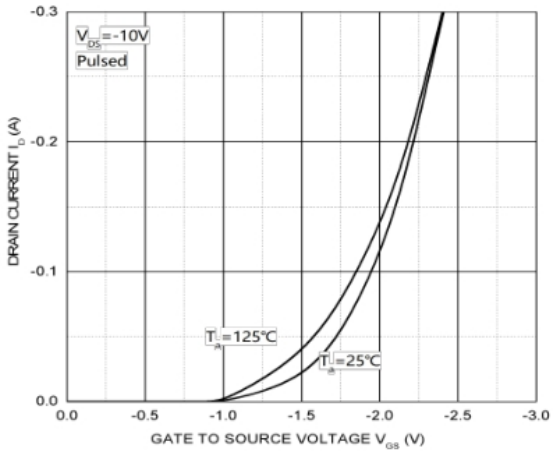
3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

4.Guaranteed by design, not subject to production.

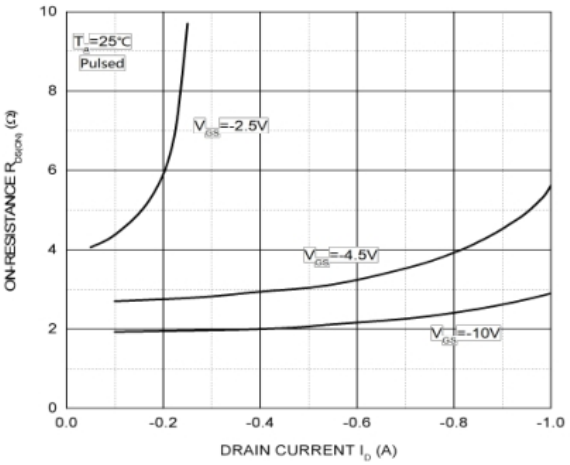
Typical Characteristics



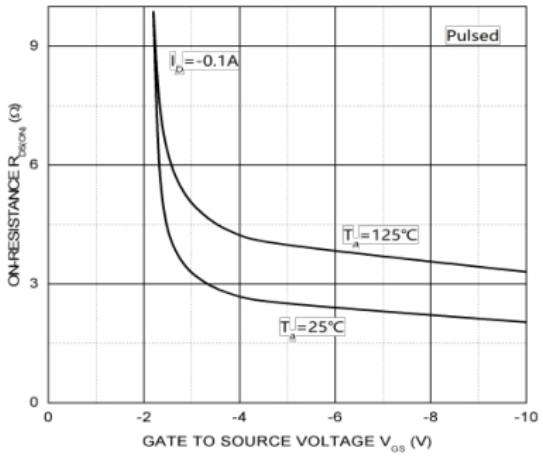
Output Characteristics



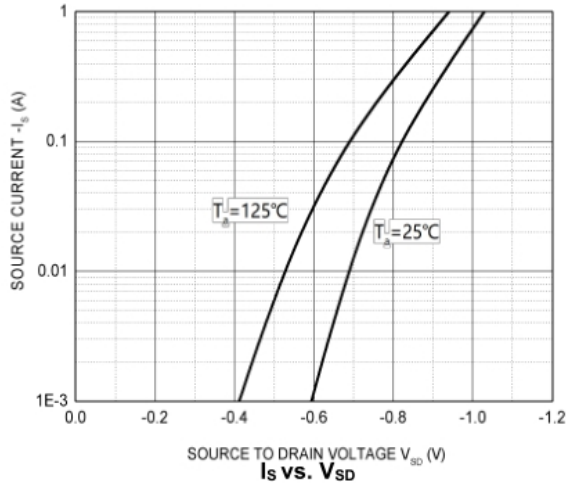
Transfer Characteristics



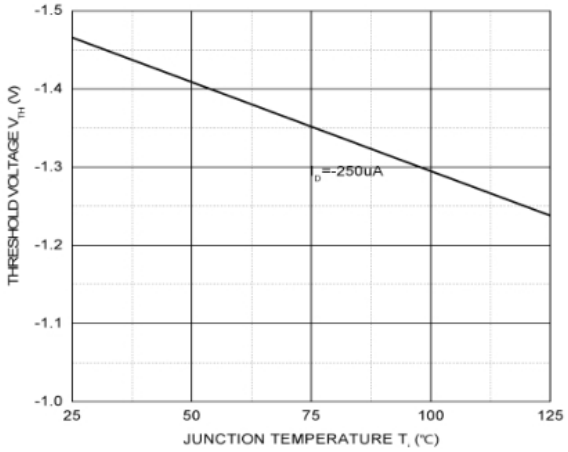
$R_{DS(ON)}$ vs. I_D



$R_{DS(ON)}$ vs. V_{GS}

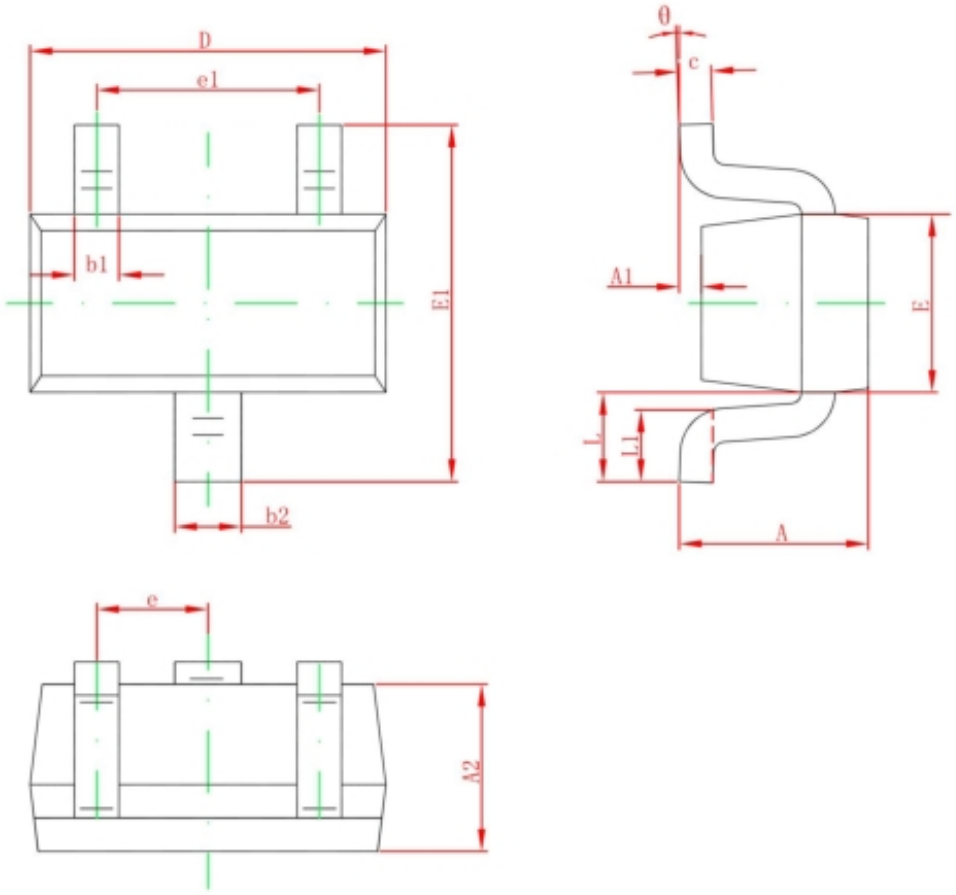


I_S vs. V_{SD}



Threshold Voltage

SOT-523 Package Information



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
C	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500 TYP	
e1	0.900	1.100
L	0.400 REF	
L1	0.260	0.460
θ	0°	8°