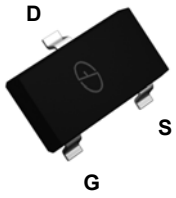
GOOD-ARK SEMICONDUCTOR

BSS84AKW

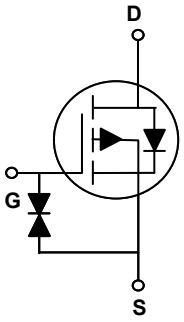
60V P-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	-60V
$R_{DS(ON)}$	4Ω@V_{GS}=-10V
I_D	-0.3A



SOT-323



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for load switch, hand-held devices and LED applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery

Description

The BSS84AKW utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current – Continuous (T_A=25°C)	I_D	-0.3	A
Drain Current – Continuous (T_A=70°C)		-0.24	A
Drain Current – Pulsed[1]	I_{DM}	-0.6	A
Power Dissipation (T_A=25°C)	P_D	0.27	W
Power Dissipation – Derate above 25°C	P_D	2.16	mW/°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	---	450	°C/W

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=-250uA	-60	---	---	V
BV_{DSS} Temperature Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C , I_D=-1mA	---	0.03	---	V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-60V , V_{GS}=0V , T_J=25°C	---	---	-1	uA
		V_{DS}=-48V , V_{GS}=0V , T_J=125°C	---	---	-30	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±10	uA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V , I_D=-0.3A	---	2.3	4	Ω
		V_{GS}=-4.5V , I_D=-0.2A	---	2.9	5	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =-250uA	-1	-1.5	-2	V
$V_{GS(th)}$ Temperature Coefficient	$\triangle V_{GS(th)}$		---	-2.1	---	mV/°C
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-25V , V_{GS}=0V , F=1MHz	---	41	---	pF
Output Capacitance	C_{oss}		---	13	---	
Reverse Transfer Capacitance	C_{rss}		---	8	---	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	V_G=V_D=0V , Force Current	---	---	-0.3	A
Pulsed Source Current	I_{SM}		---	---	-0.6	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25°C	---	---	-1.3	V

Note:
1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≦ 300uS, duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

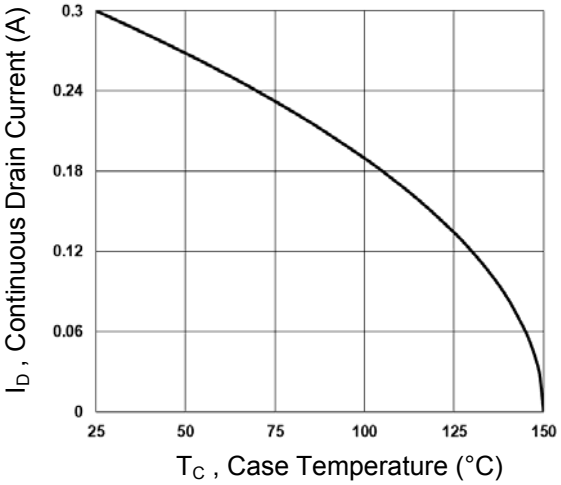


Fig.1 Continuous Drain Current vs. T_C

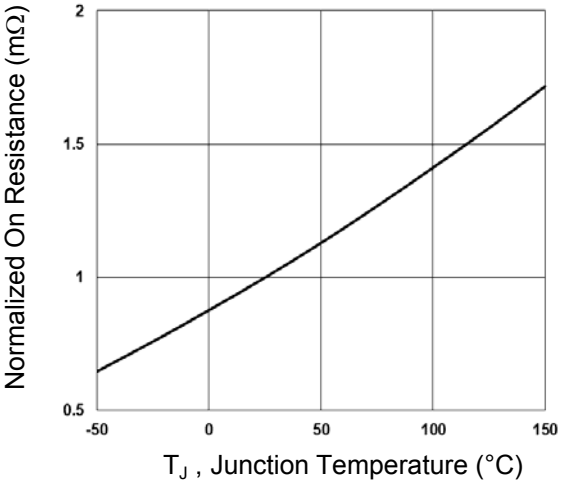


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

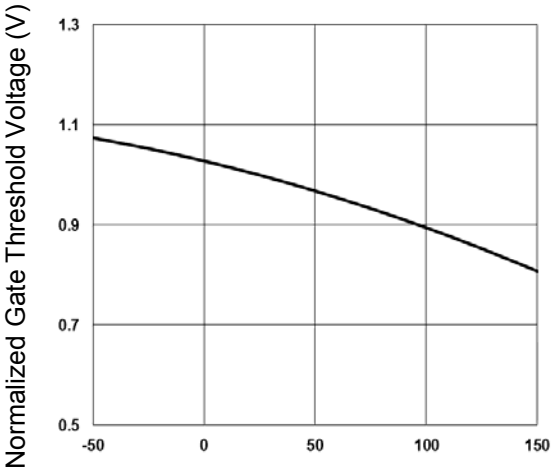


Fig.3 Normalized Vth vs. T_J

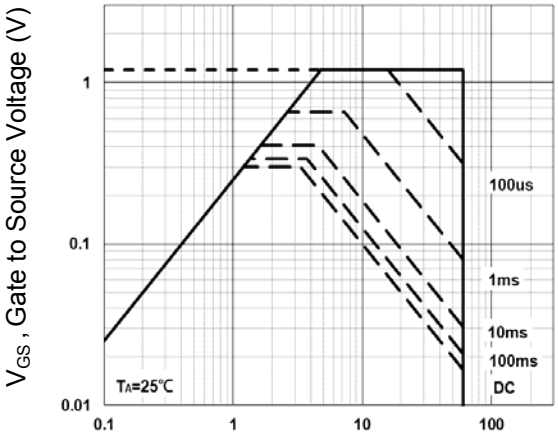


Fig.4 Gate Charge Waveform

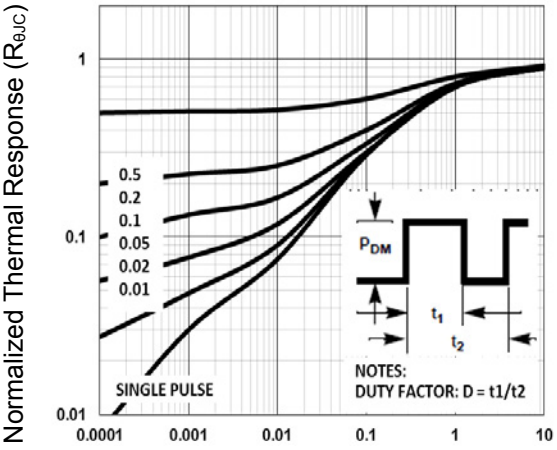


Fig.5 Normalized Transient Impedance

Typical Electrical and Thermal Characteristic Curves

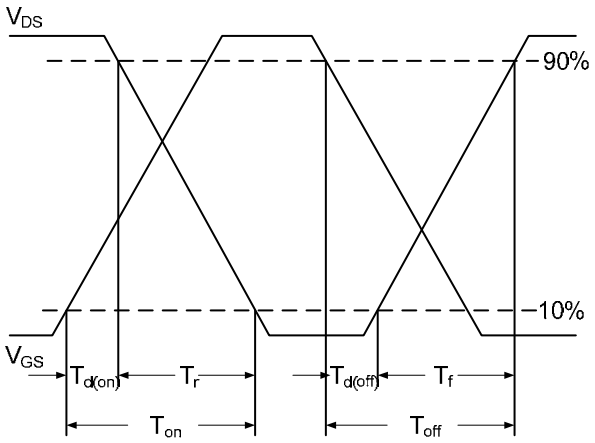


Fig. 6 Switching Time Waveform

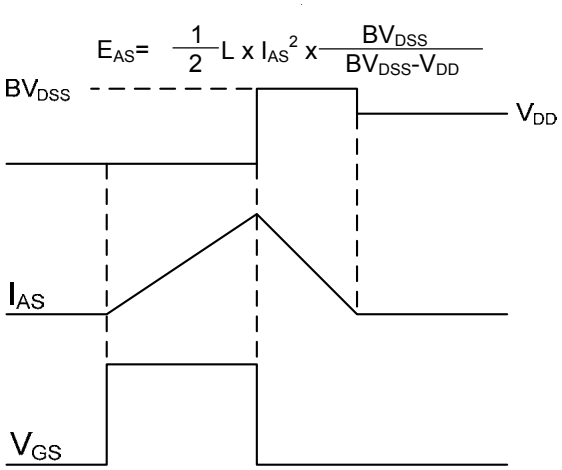
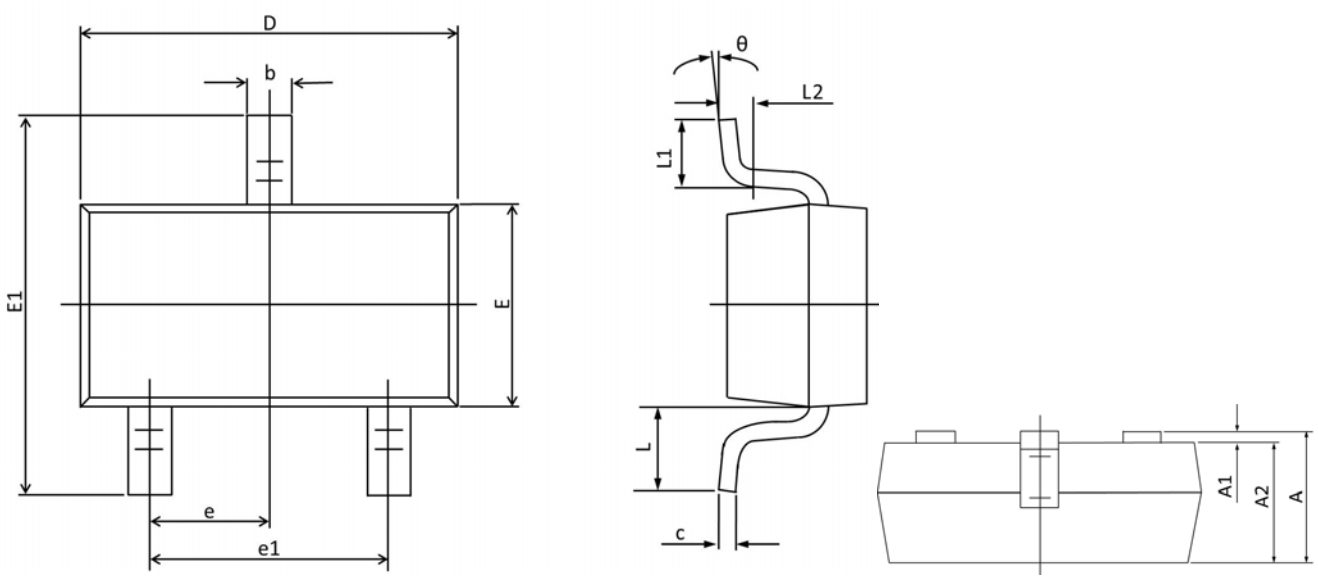


Fig.7 E_{AS} Waveform

Package Outline Dimensions

SOT-323



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.400	0.200	0.016	0.008
c	0.250	0.080	0.010	0.003
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.450	1.800	0.096	0.071
e	0.65BSC		0.026BSC	
e1	1.400	1.200	0.055	0.047
L	0.525REF.		0.021REF.	
L1	0.460	0.150	0.018	0.006
L2	0.200	0.000	0.008	0.000
θ	8°	0°	8°	0°