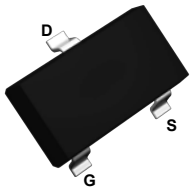
BSS84K

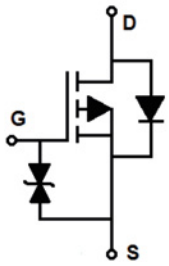
60V P-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	-60V
$R_{DS(ON)}$	2.2Ω (Typ.)
I_D	-0.35A



SOT-23



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery

Description

The BSS84K 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 supplies and a wide variety of other applications.

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

Parameter		Symbol	Rating	Unit
Gate-Source Voltage		V_{GS}	±20	V
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	-60	V
Pulse Drain Current Tested[1]	T_A=25°C	I_{DM}	-1.2	A
Continuous Drain Current	T_A=25°C	I_D	-0.35	A
	T_A=70°C		-0.28	
Maximum Power Dissipation	T_A=25°C	P_D	0.3	W
	T_A=70°C		0.24	
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	400	°C/W
Maximum Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-50 to +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V, T_A=25°C	-	-	-1	μA
		V_{DS}=-48V, V_{GS}=0V, T_A=125°C	-	-	-100	
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.0	-1.6	-2.0	V
Drain-Source On-State Resistance[2]	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-0.15A	-	2.2	4	Ω
		V_{GS}=-4.5V, I_D=-0.15A	-	2.9	6	
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-30V, V_{GS}=0V, F=1MHz	-	25.2	-	pF
Output Capacitance	C_{oss}		-	5.9	-	
Reverse Transfer Capacitance	C_{rss}		-	1.4	-	
Total Gate Charge	Q_g	V_{DS}=-30V, I_D=-0.2A, V_{GS}=-10V	-	0.53	-	nC
Gate Source Charge	Q_{gs}		-	0.14	-	
Gate Drain Charge	Q_{gd}		-	0.1	-	
Turn On Delay Time	$t_{d(on)}$	V_{DD}=-30V, I_D=-0.1A, R_G=3.3Ω, V_{GS}=-10V	-	1.6	-	nS
Turn On Rise Time	t_r		-	5.2	-	
Turn Off Delay Time	$t_{d(off)}$		-	12	-	
Turn Off Fall Time	t_f		-	6.1	-	
Source-Drain Ratings and Characteristics						
Source Drain Current (Body Diode)	I_{SD}	T_A=25°C	-	-	-0.35	A
Forward on Voltage[2]	V_{SD}	T_J=25°C, I_{SD}=-0.1A, V_{GS}=0V	-	-	-1.2	V

Notes:

1. Pulse width limited by maximum allowable junction temperature.
2. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%.

Typical Electrical and Thermal Characteristic Curves

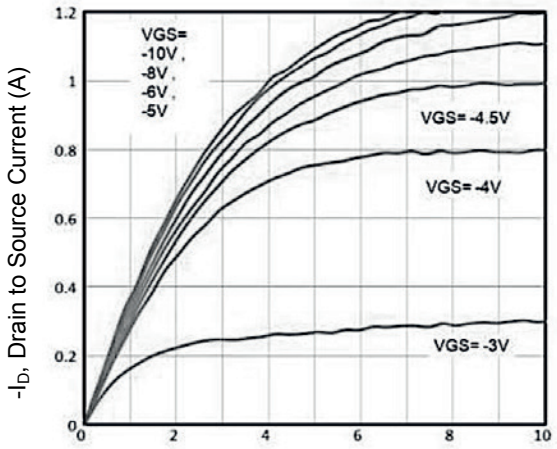


Figure 1. Typical Output Characteristics

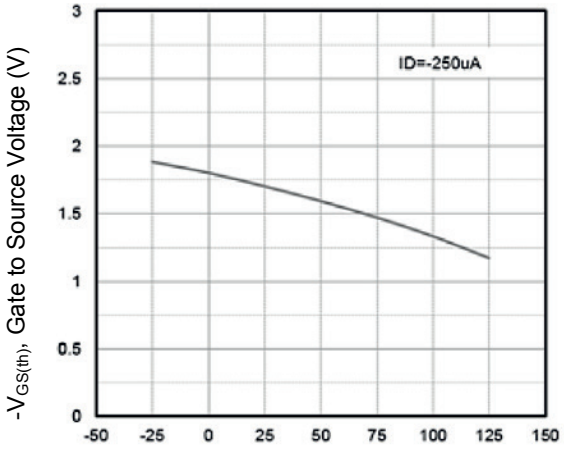


Figure 2. Gate Threshold Voltage vs. T_J

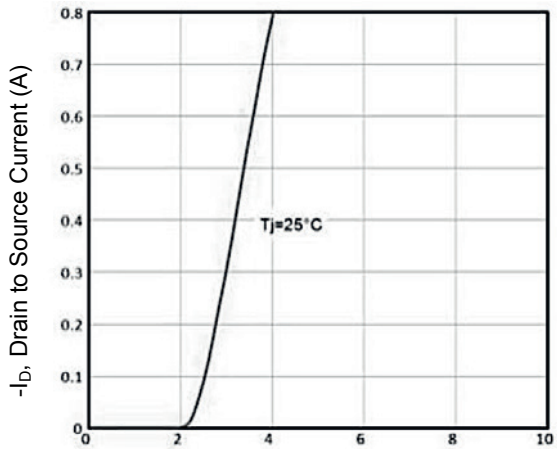


Figure 3. Typical Transfer Characteristics

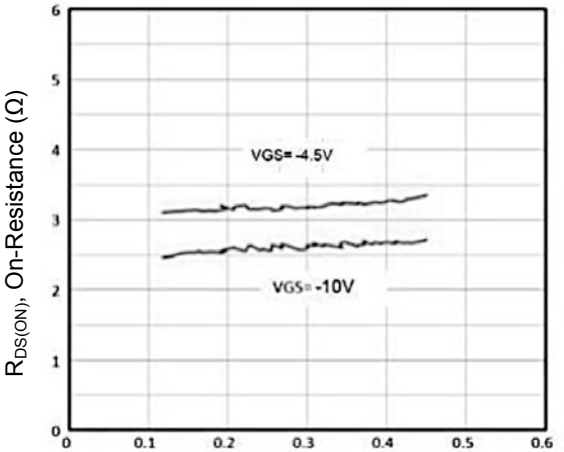


Figure 4. $R_{DS(ON)}$ vs. Drain Current

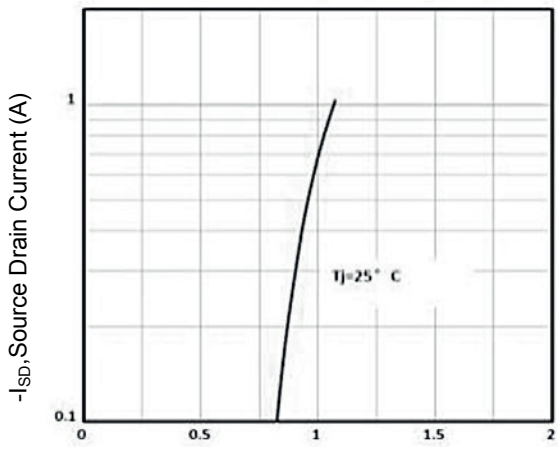


Figure 5. Typical Source-Drain Diode Forward Voltage

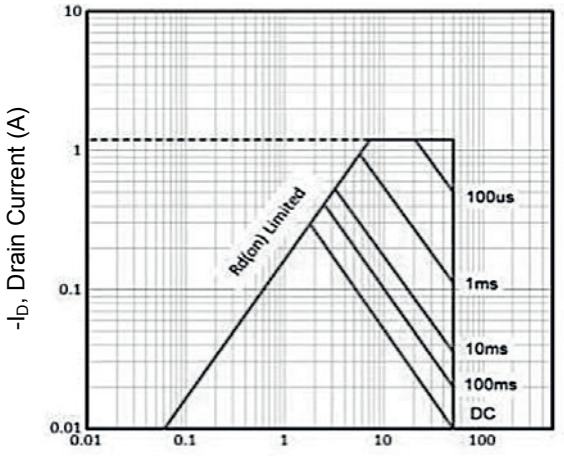


Figure 6. Maximum Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

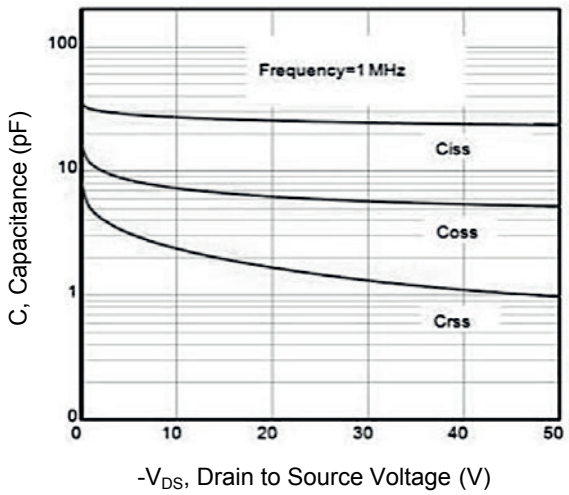


Figure 7. Capacitance Characteristics

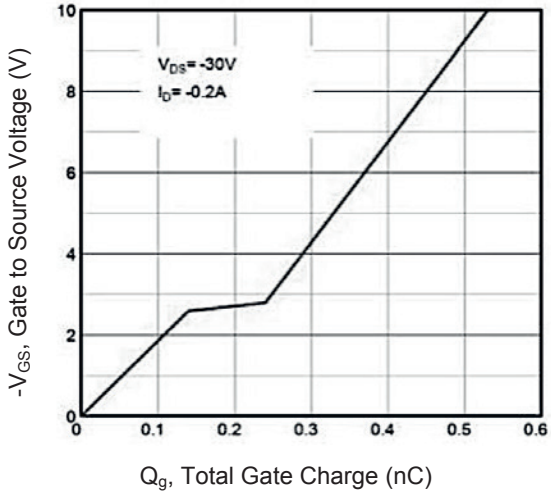


Figure 8. Gate Charge

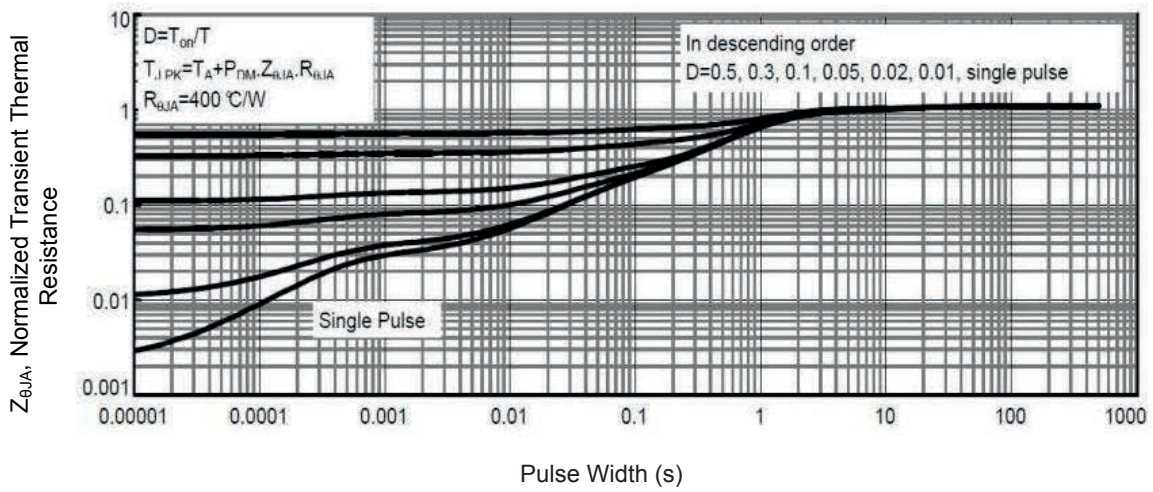
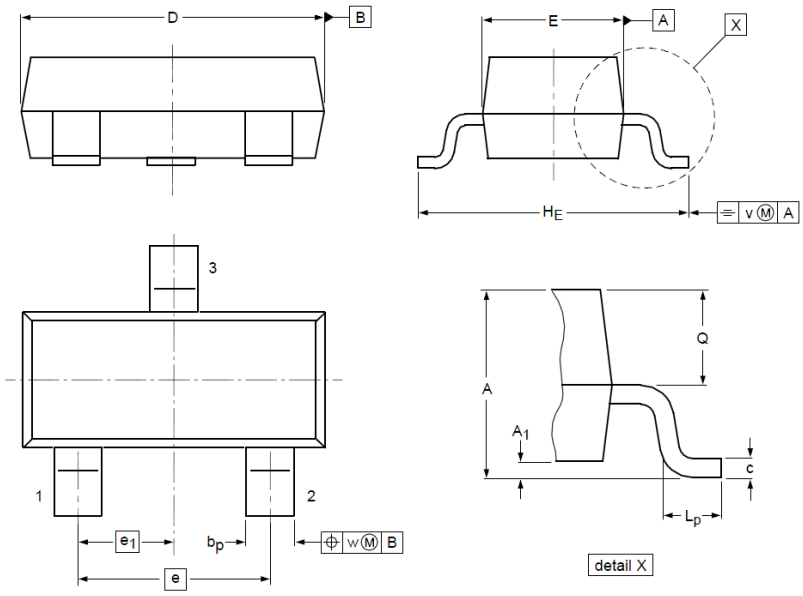


Figure 9. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
b_p	0.30	0.50	0.012	0.020
D	2.80	3.00	0.110	0.118
e	1.90 TYP		0.075 TYP	
H_E	2.25	2.55	0.089	0.100
Q	0.45	0.55	0.018	0.022
w	0.10 TYP		0.004 TYP	
A_1	0.01	0.10	0.000	0.004
c	0.08	0.15	0.003	0.006
E	1.20	1.40	0.047	0.055
e_1	0.95 TYP		0.037 TYP	
L_p	0.30	0.50	0.012	0.020
v	0.20 TYP		0.008 TYP	

Order Information

Device	Package	Marking	Carrier	Quantity
BSS84K	SOT-23	84K	Tape & Reel	3,000 Pcs / Reel