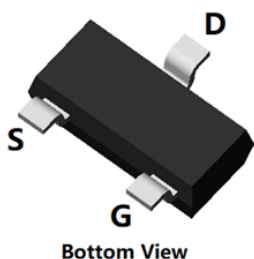
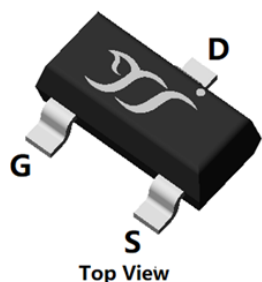
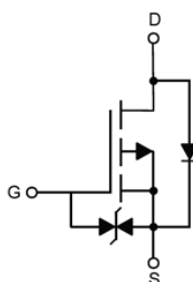


P-Channel Enhancement Mode Field Effect Transistor



SOT-23



Product Summary

- V_{DS} -60 V
- I_D -0.3 A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) $<3\ \Omega$
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) $<3.5\ \Omega$
- Gate-Source ESD Rating Up to 2KV (HBM)

General Description

- Operated at Low Logic Level Gate Drive
- P-Channel Switch with Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free

Applications

- Power management
- Portable equipment

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

Parameter	Symbol	Limit	Unit	
Drain-source Voltage	V_{DS}	-60	V	
Gate-source Voltage	V_{GS}	± 20	V	
Drain Current	I_D	$T_A=25$	-0.3	A
		$T_A=100$	-0.19	
Pulsed Drain Current ^A	I_{DM}	-1.2	A	
Total Power Dissipation ^B	P_D	$T_A=25$	0.5	W
		$T_A=100$	0.2	
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150		

■ Thermal resistance

Parameter	Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^C	$R_{\theta JA}$	200	250	$^{\circ}C/W$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSS84KJ	F2	B84K	3000	30000	120000	7" reel



BSS84KJ

■ Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =-250μA	-60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	-	-	-1	μA
		V _{DS} =-60V, V _{GS} =0V, T _J =150	-	-	-100	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	-	-	±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-1.0	-1.5	-2.0	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-0.3A	-	2.2	3	Ω
		V _{GS} =-4.5V, I _D =-0.1A	-	2.5	3.5	
Diode Forward Voltage	V _{SD}	I _S =-0.3A, V _{GS} =0V	-	-0.9	-1.3	V
Gate resistance	R _G	f=1MHz, Open drain	-	700	-	Ω
Maximum Body-Diode Continuous Current	I _S		-	-	-0.3	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1MHz	-	35	-	pF
Output Capacitance	C _{oss}		-	6	-	
Reverse Transfer Capacitance	C _{rss}		-	3	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-30V, I _D =-1A	-	1.7	-	nC
Gate-Source Charge	Q _{gs}		-	0.6	-	
Gate-Drain Charge	Q _{gd}		-	0.2	-	
Reverse Recovery Charge	Q _{rr}	I _F =-1A, di/dt=100A/us	-	10	-	nC
Reverse Recovery Time	t _{rr}		-	18	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DD} =-30V, I _D =-1A R _{GEN} =2.3Ω	-	6	-	ns
Turn-on Rise Time	t _r		-	21	-	
Turn-off Delay Time	t _{D(off)}		-	31	-	
Turn-off fall Time	t _f		-	32	-	

A. Repetitive rating; pulse width limited by max. junction temperature.

B. P_d is based on max. junction temperature, using junction-case and junction-ambient thermal resistance.

C. The value of R_{θJA} is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in the still air environment with T_A=25°C. The maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.



■ Typical Electrical and Thermal Characteristics Diagrams

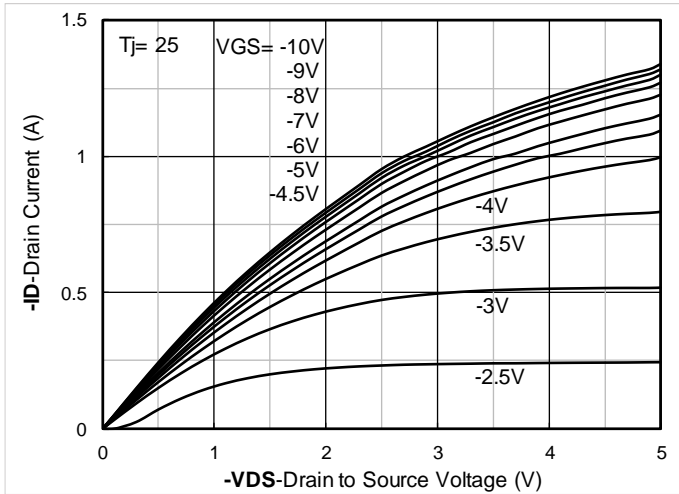


Figure 1. Output Characteristics

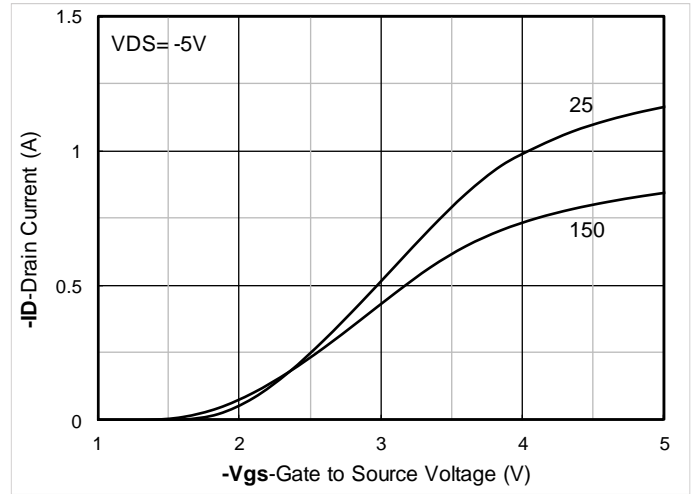


Figure 2. Transfer Characteristics

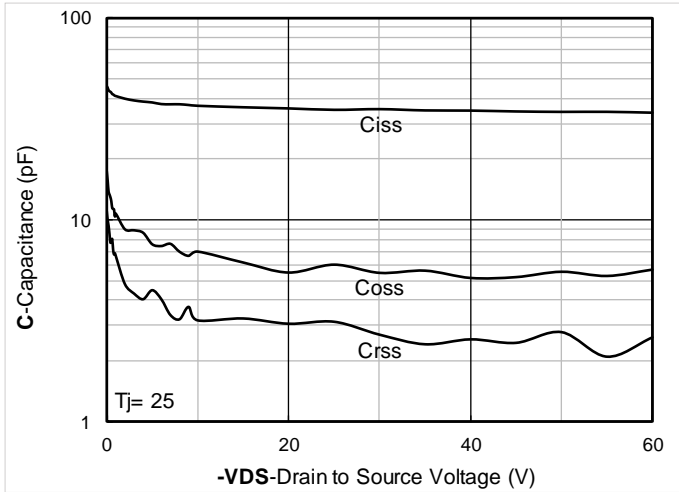


Figure 3. Capacitance Characteristics

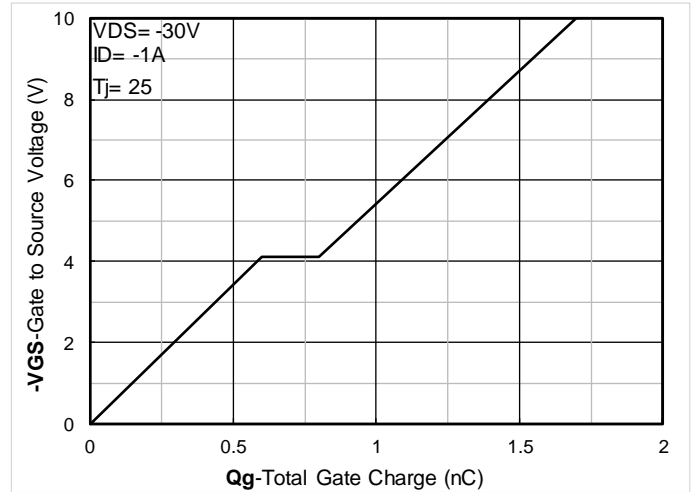


Figure 4. Gate Charge

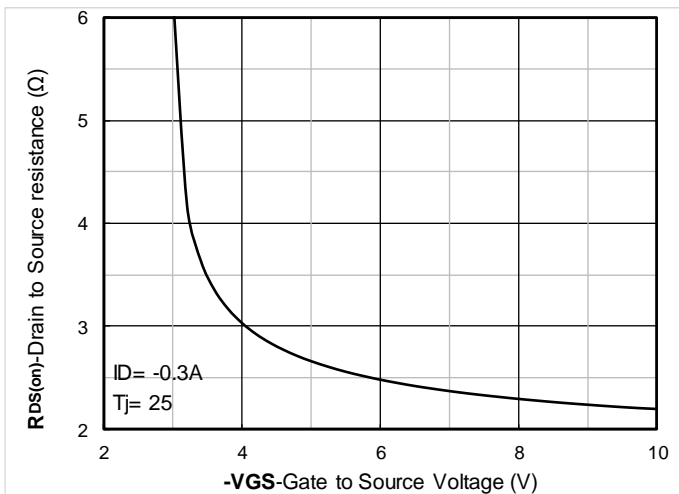


Figure 5. On-Resistance vs Gate to Source Voltage

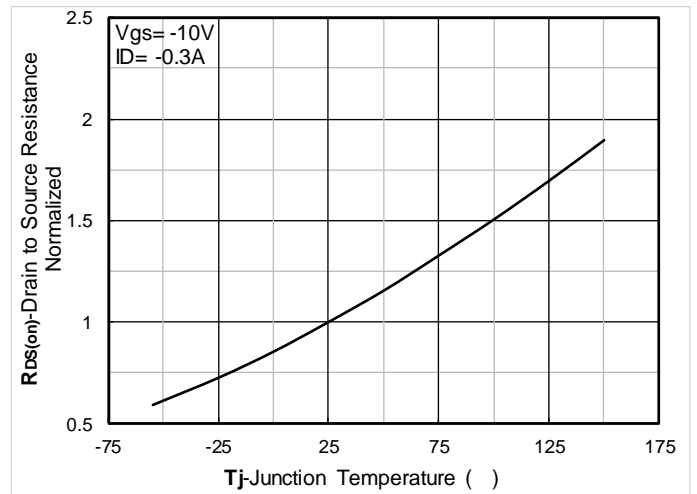


Figure 6. Normalized On-Resistance



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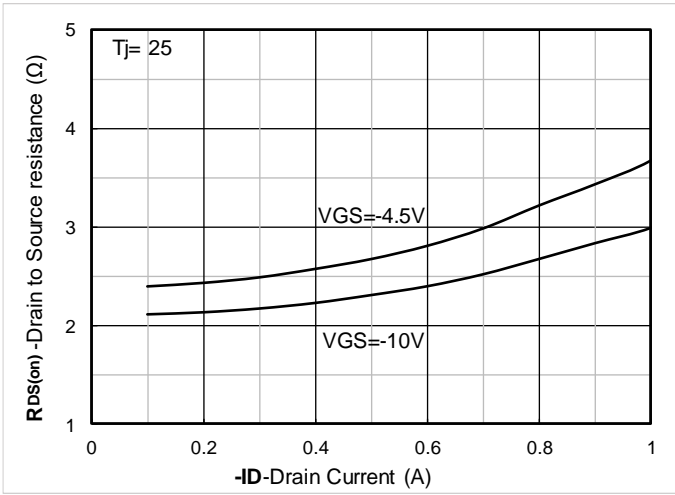


Figure 7. $R_{DS(on)}$ VS Drain Current

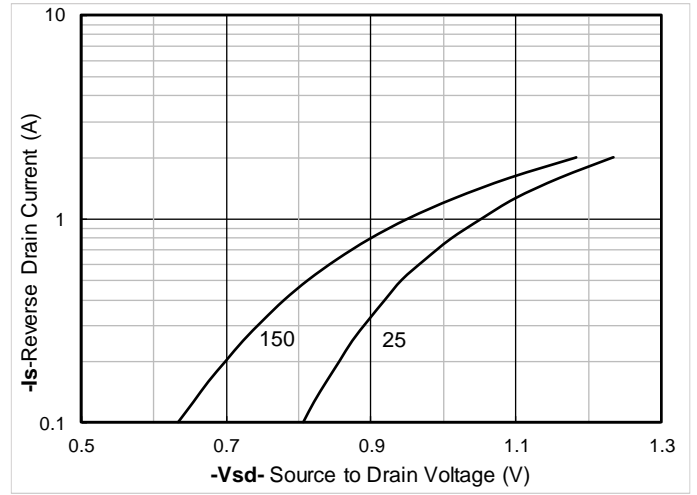


Figure 8. Forward characteristics of reverse diode

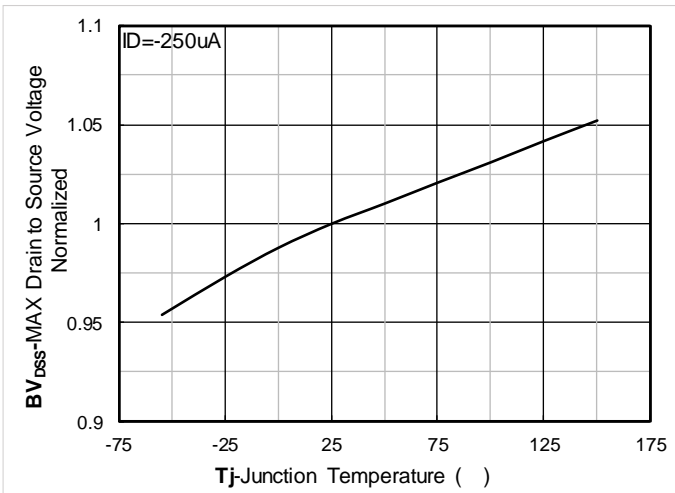


Figure 9. Normalized breakdown voltage

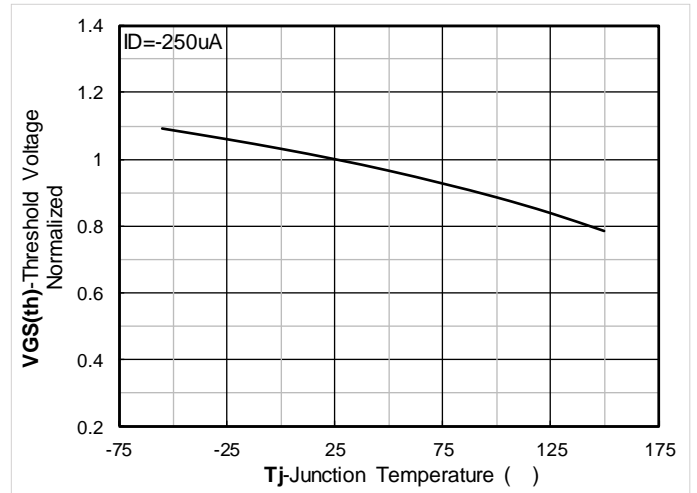


Figure 10. Normalized Threshold voltage

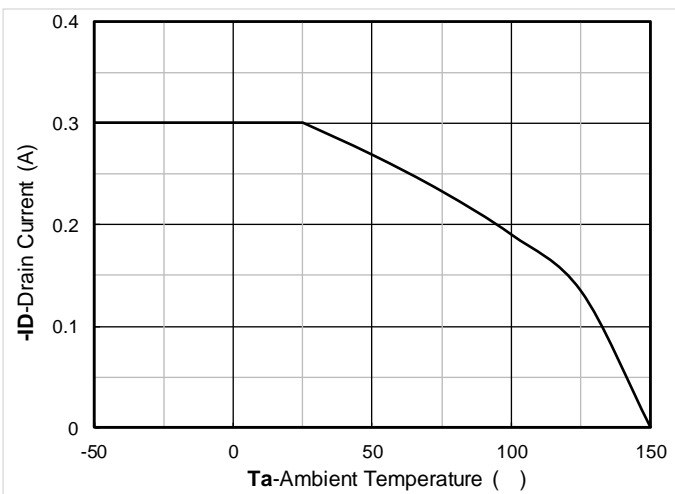


Figure 11. Current dissipation

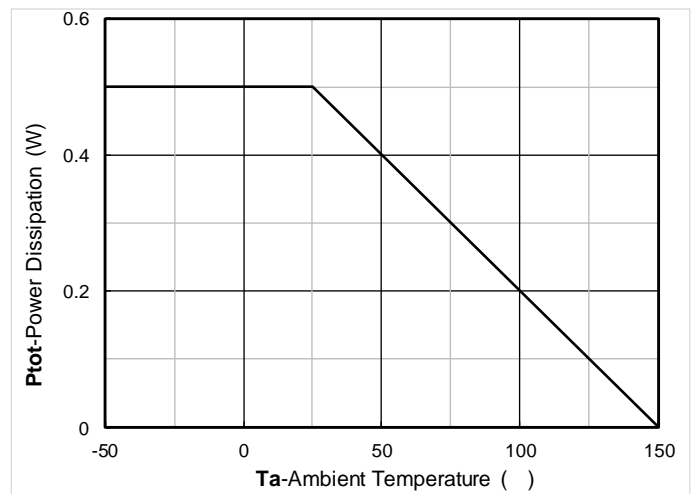


Figure 12. Power dissipation



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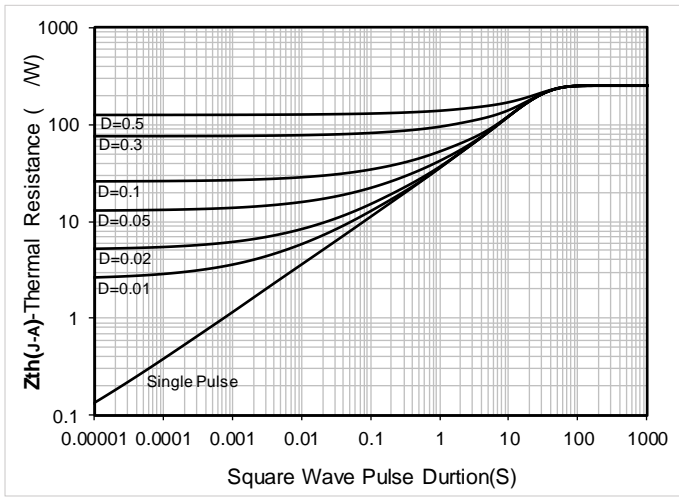


Figure 13. Maximum Transient Thermal Impedance

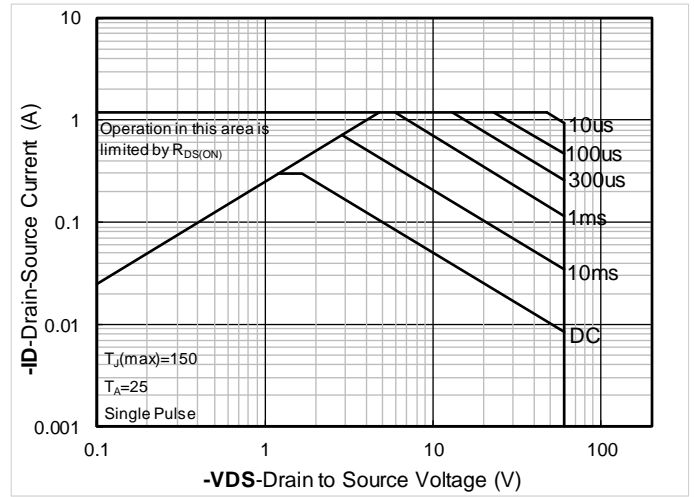
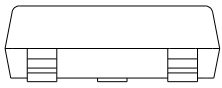
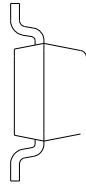
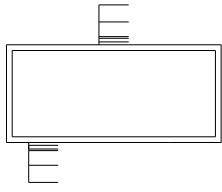


Figure 14. Safe Operation Area



■ SOT-23 Package information



UNIT: mm



BSS84KJ

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