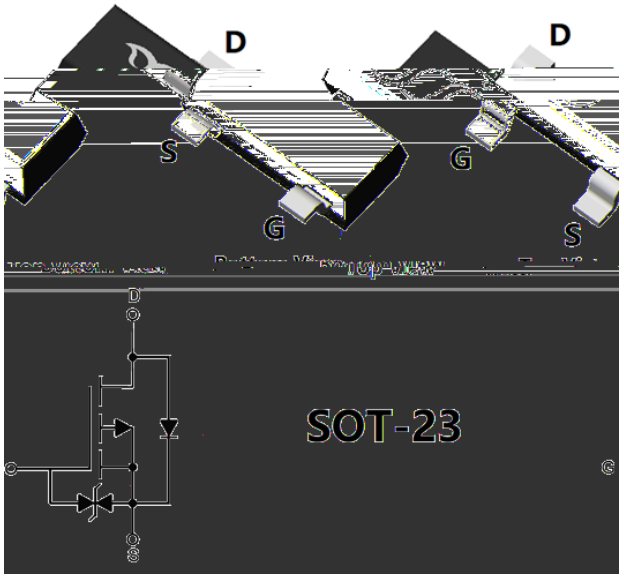
P-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	-60 V
I_D	-0.3 A
$R_{DS(ON)}$(at V_{GS}=-10V)	3
$R_{DS(ON)}$(at V_{GS}=-4.5V)	3.5

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

Rq g o cpci go gp
Rq cdrgg kr o gp

Absolute Maximum Ratings (T_A=25 unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	-60	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_A=25	I_D	-0.3	A
	T_A=100		-0.19	
Pulsed Drain Current [A]		I_{DM}	-1.2	A
Total Power Dissipation [B]	T_A=25	P_D	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]	Steady-State	R LC	200	250	/W

Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSS84KJ	F2	B84K	3000	30000	120000	9 reel

Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=-472 C	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V	-	-	-1	C
		V_{DS}=-60V, V_{GS}=0V, Tj=150	-	-	-100	
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V	-	-	±10	C
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-472 C	-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	
		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	-	
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, ID=-1A R_{GEN}=2.3	-	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_{LC} is measured with the device mounted on 1 in^2 FR-4 board with 2oz. Copper, in the still air environment with T_A =25 . The maximum allowed junction temperature of 150 . The value in any given application depends on the user's specific board design.

Typical Electrical and Thermal Characteristics Diagrams

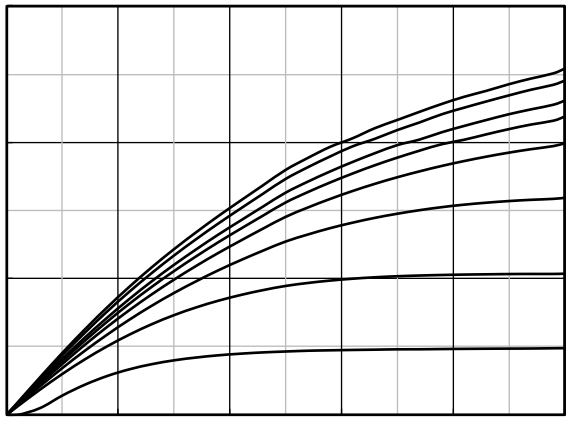


Figure 1. Output Characteristics

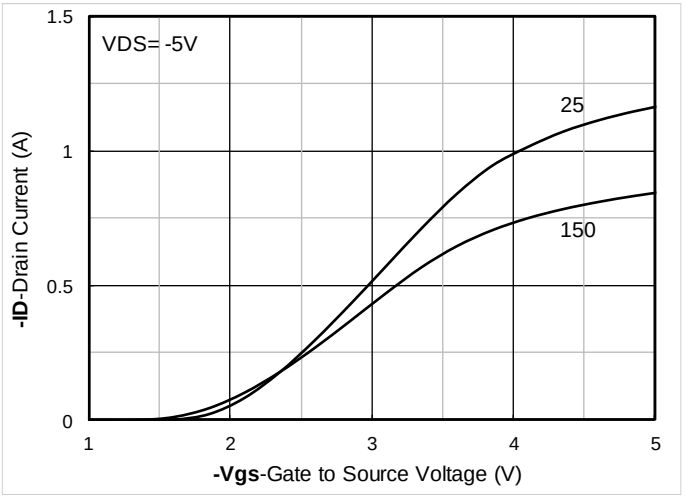


Figure 2. Transfer Characteristics

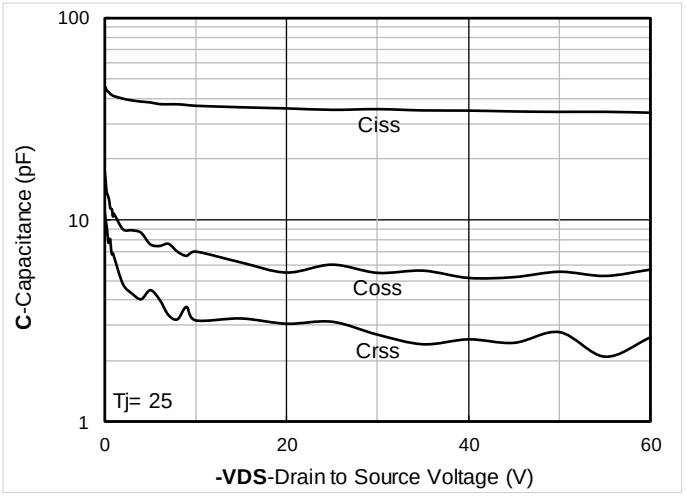


Figure 3. Capacitance Characteristics

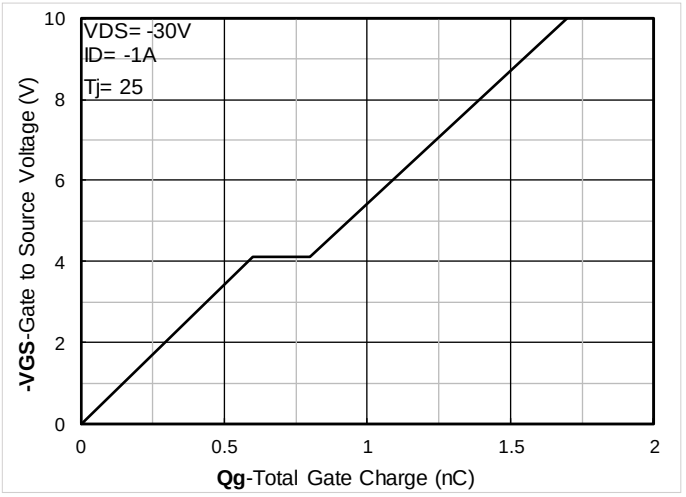


Figure 4. Gate Charge

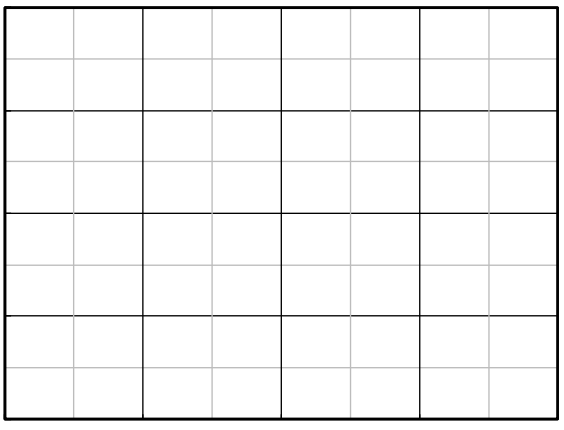


Figure 5. On-Resistance vs Gate to Source Voltage

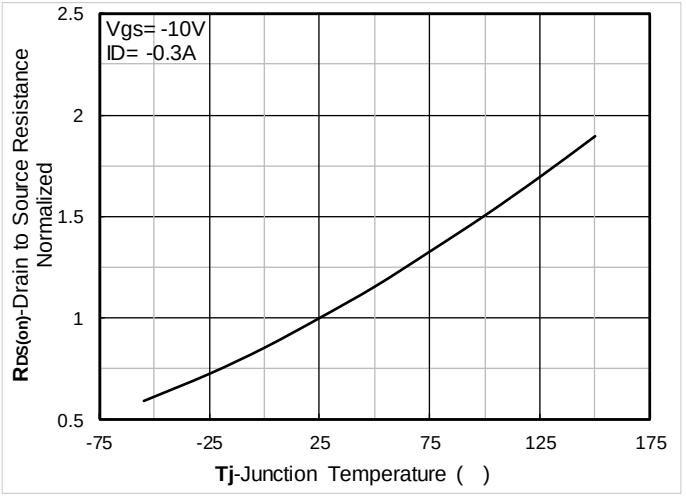


Figure 6. Normalized On-Resistance

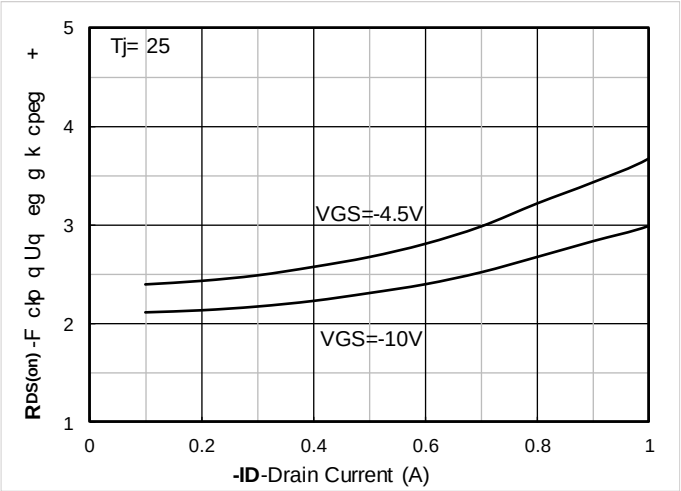


Figure 7. RDS(on) VS Drain Current

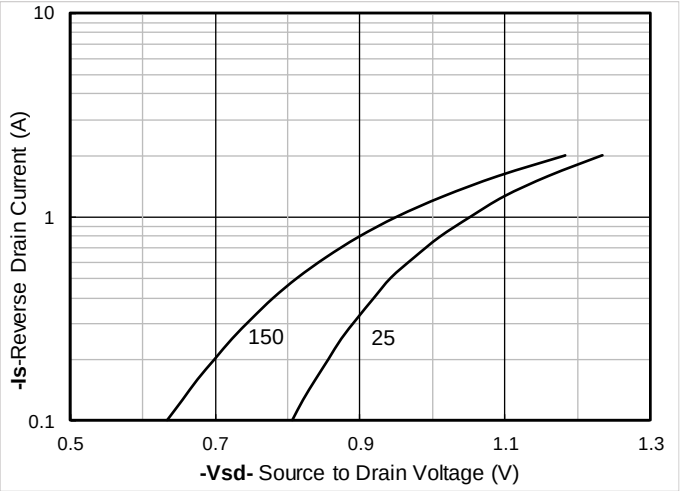


Figure 8. Forward characteristics of reverse diode

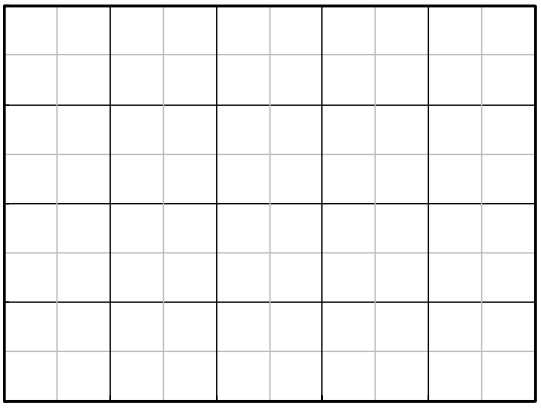


Figure 9. Normalized breakdown voltage

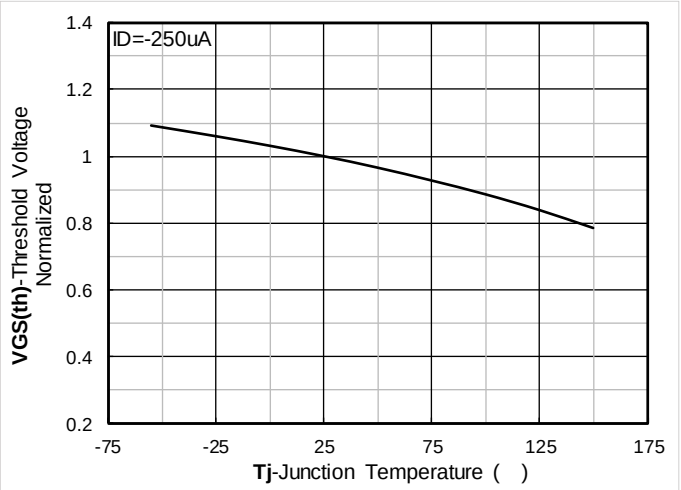


Figure 10. Normalized Threshold voltage

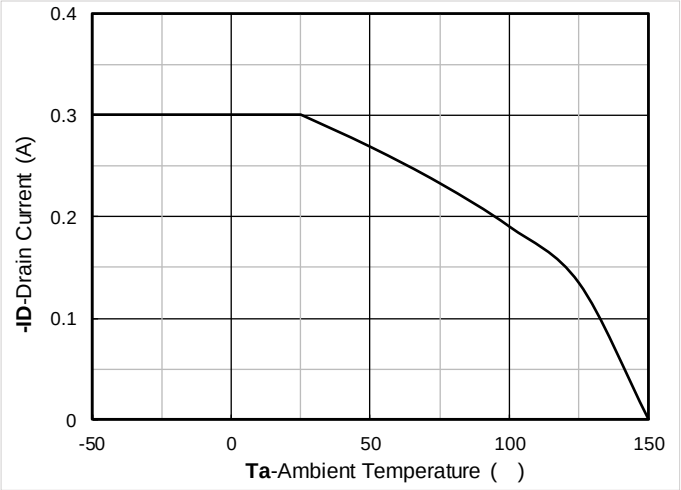


Figure 11. Current dissipation

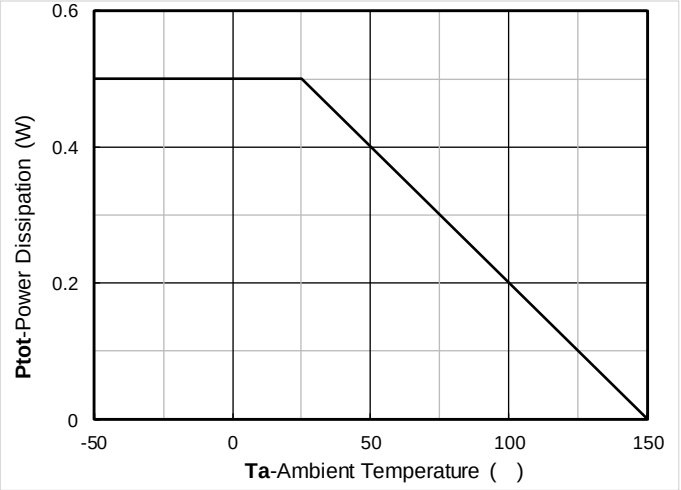


Figure 12. P60000.05Qq0.000008882 0T55888

Figure 13. Maximum Transient Thermal Impedance

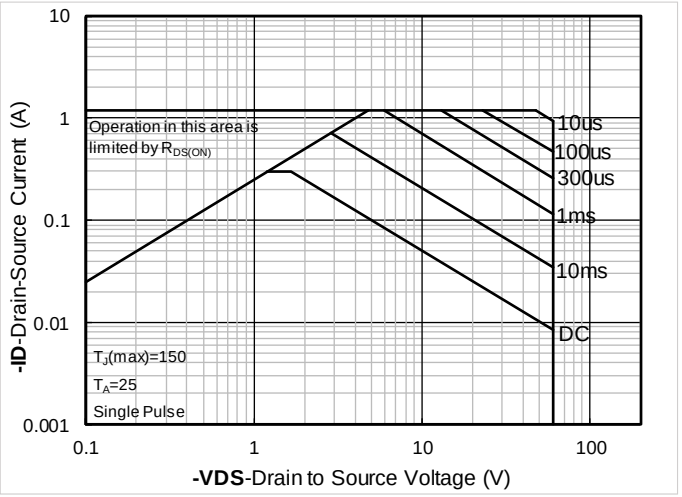


Figure 14. Safe Operation Area

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