

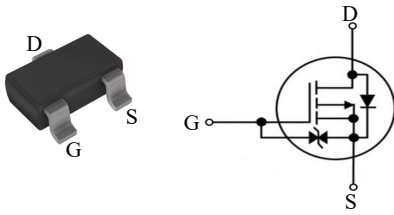


# BSS84KH

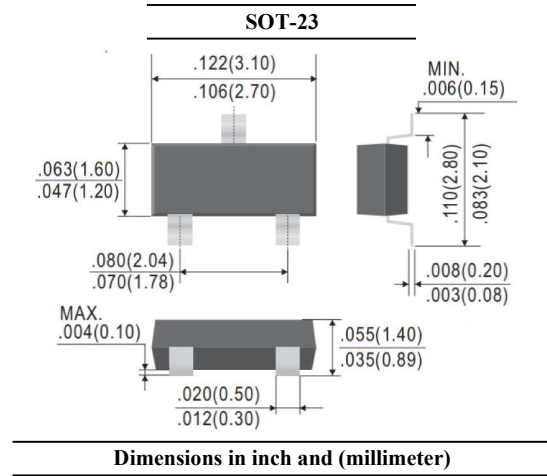
## P-Channel Enhancement Mode Field Effect Transistor

### FEATURES

· Suffix "H" indicates Halogen-free parts, ex. BSS84KH



Pin	Description
G	Gate
S	Source
D	Drain



### Maximum Ratings ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	-60	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	-180	mA
Pulsed Drain Current (Note 1)	$I_{DM}$	-700	mA
Power Dissipation	$P_D$	225	mW
Thermal Resistance Junction to Ambient (Note 2)	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
(Note 3)		265	
Operating and Storage Temperature Range	$T_j, T_{stg}$	- 55 to + 150	$^\circ\text{C}$

Note :

1. Pulse width  $\leq 100\mu\text{s}$ , Duty Cycle  $\leq 2\%$ , Repetitive rating, pulse width limited by junction temperature  $T_{j(\text{MAX})} = 150^\circ\text{C}$
2. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.
3. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-in<sup>2</sup> copper plate.



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### Electrical Characteristics ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>						
Drain Source Breakdown Voltage	$I_D = -250\mu\text{A}$	$V_{DSS}$	-50	-	-	V
Gate Threshold Voltage	$V_{GS} = V_{DS}, I_D = -250\mu\text{A}$	$V_{GS(th)}$	-0.9	-	-2.0	V
Zero Gate Voltage Drain Current	$V_{DS} = -25\text{V}$	$I_{DSS}$	-	-	-0.1	$\mu\text{A}$
	$V_{DS} = -60\text{V}$		-	-	-1.0	
Gate-Body Leakage Current	$V_{GS} = \pm 20\text{V}$	$I_{GSS}$	-	-	$\pm 10$	$\mu\text{A}$
Drain-Source On-State Resistance	$V_{GS} = -5\text{V}, I_D = -100\text{mA}$	$R_{DS(ON)}$	-	2.6	10.0	$\Omega$
Forward Transconductance	$V_{DS} = -25\text{V}, I_D = -100\text{mA},$ $f = 1\text{KHz}$	$g_{FS}$	50	-	-	mS
<b>Dynamic</b>						
Total Gate Charge	$V_{DS} = -25\text{V}, I_D = -0.1\text{A},$ $V_{GS} = -4.5\text{V}$	$Q_g$	-	1.1	-	nC
Gate-Source Charge		$Q_{gs}$	-	0.3	-	
Gate-Drain Charge		$Q_{gd}$	-	0.2	-	
Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = -30\text{V},$ $f = 1\text{MHz}$	$C_{iss}$	-	38	-	pF
Output Capacitance		$C_{oss}$	-	9	-	
Reverse Transfer Capacitance		$C_{rss}$	-	6	-	
Turn-On Delay Time	$V_{DS} = -25\text{V}, I_D = -0.1\text{A},$ $V_{GS} = -10\text{V}, R_g = 6.8\Omega$	$t_{d(on)}$	-	14	-	ns
Turn-On Rise Time		$t_r$	-	4	-	
Turn-Off Delay Time		$t_{d(off)}$	-	15	-	
Turn-Off Fall Time		$t_f$	-	77	-	
<b>Drain-Source Body Diode</b>						
Diode Forward Voltage	$I_S = -500\text{mA}$	$V_{SD}$	-	-	-1.2	V
Reverse Recovery Time	$I_F = -0.1\text{A},$	$t_{rr}$	-	60	-	ns
Reverse Recovery Charge	$di/dt = 100\text{A}/\mu\text{s}$	$Q_{rr}$	-	58	-	nC



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### RATINGS AND CHARACTERISTIC CURVES

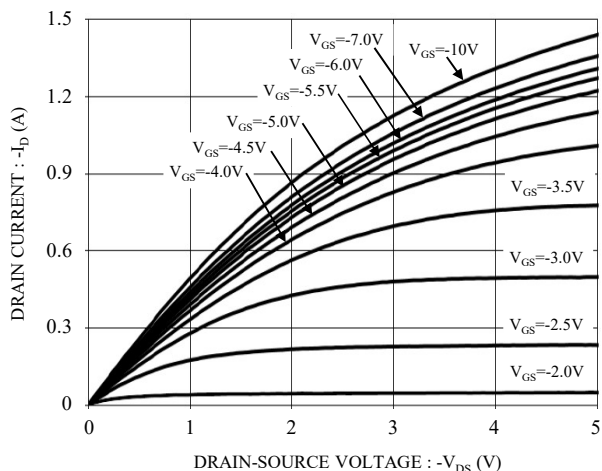


Fig.1 Typical Output Characteristics

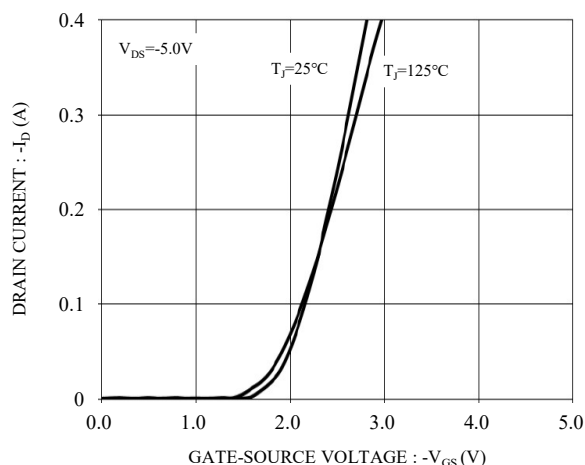


Fig.2 Typical Transfer Characteristics

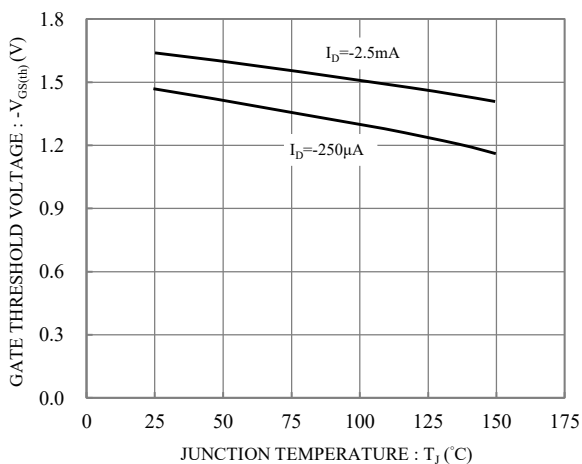


Fig.3 Gate Threshold Voltage vs. Junction Temperature

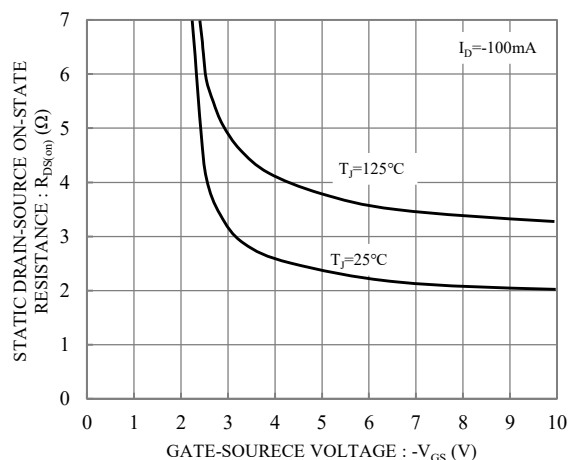


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

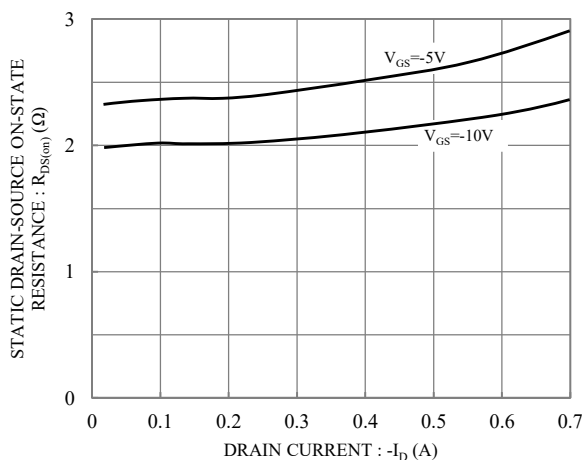


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

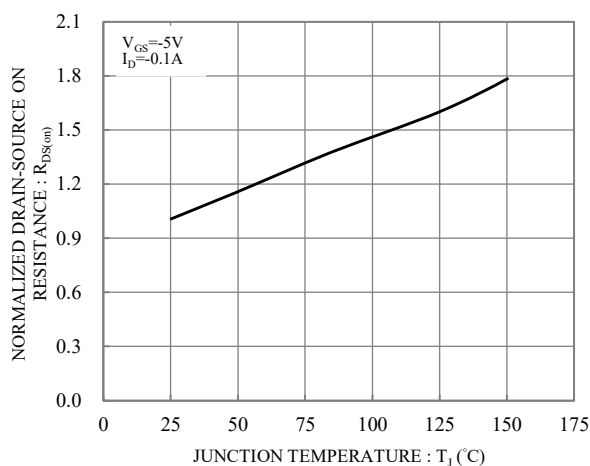
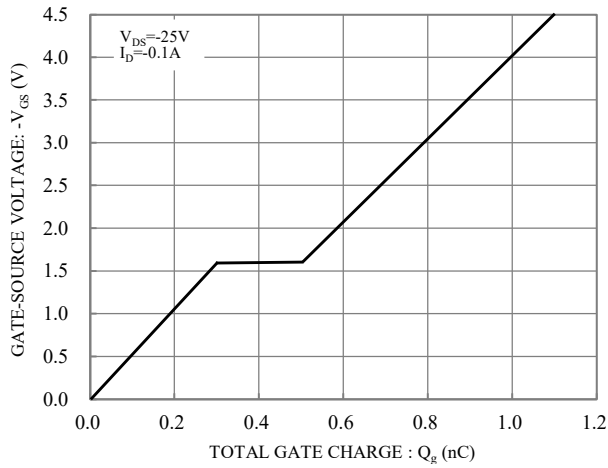


Fig.6 Drain-Source On-State Resistance vs. Junction Temperature

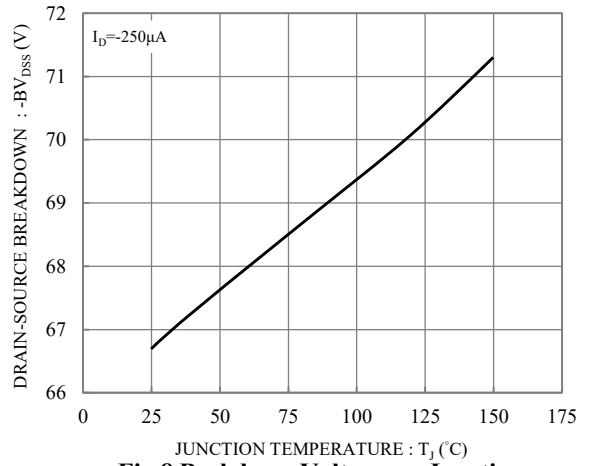


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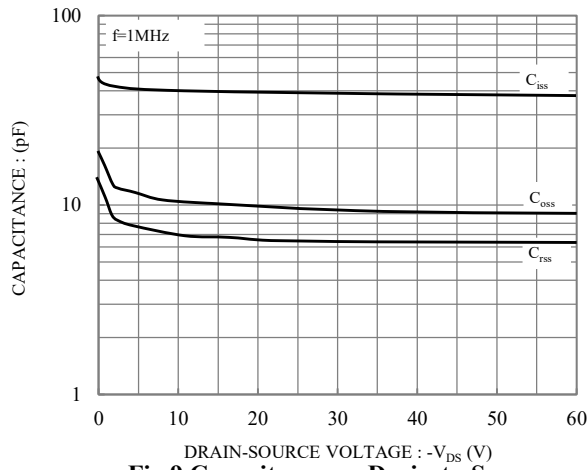
## P-Channel Enhancement Mode Field Effect Transistor



**Fig.7 Gate Charge**



**Fig.8 Breakdown Voltage vs. Junction Temperature**



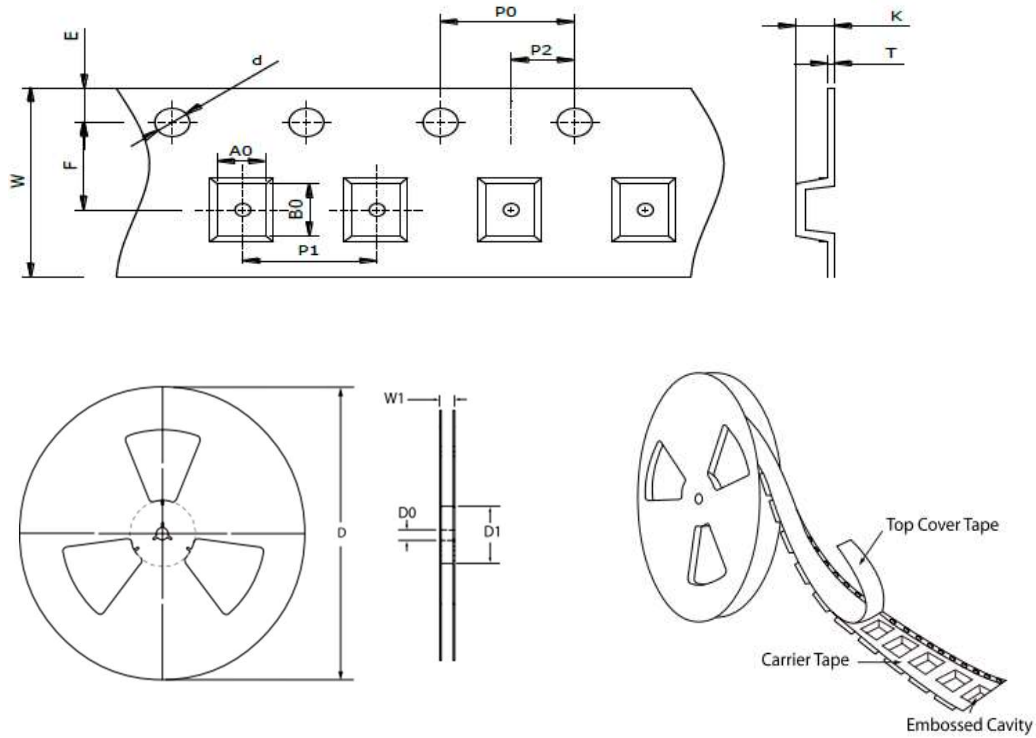
**Fig.9 Capacitance vs. Drain-to-Source Voltage**



# BSS84KH

## P-Channel Enhancement Mode Field Effect Transistor

### TAPE & REEL SPECIFICATION



Item	Symbol	SOT-23
Carrier width	A <sub>0</sub>	3.30 ± 0.10
Carrier length	B <sub>0</sub>	3.00 ± 0.10
Carrier depth	K	1.70 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D <sub>0</sub>	13.00 ± 0.50
Reel inner diameter	D <sub>1</sub>	MIN. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket hole pitch	P <sub>0</sub>	4.00 ± 0.10
Punch hole pitch	P <sub>1</sub>	4.00 ± 0.10
Embossment center	P <sub>2</sub>	2.00 ± 0.10
Overall tape thickness	T	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W <sub>1</sub>	MAX. 14.50

### ORDER INFORMATION

Package	Reel Size	Quantity
SOT-23	7"	3,000

### MARKING CODE

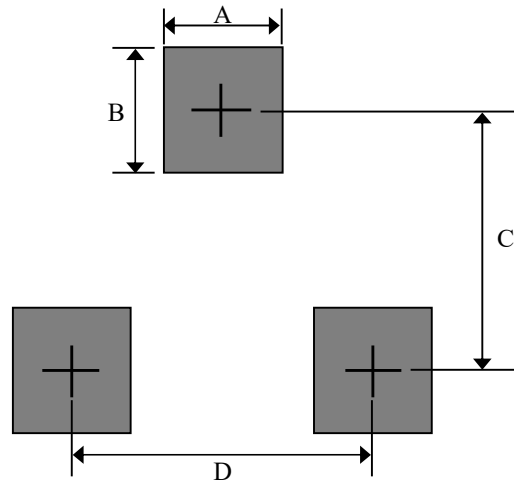
Part Number	Marking Code
BSS84KH	VY



# BSS84KH

*P-Channel Enhancement Mode Field Effect Transistor*

## *SUGGESTED SOLDER PAD LAYOUT*



Unit : mm

PACKAGE	A	B	C	D
SOT-23	0.80	1.00	2.40	1.90