

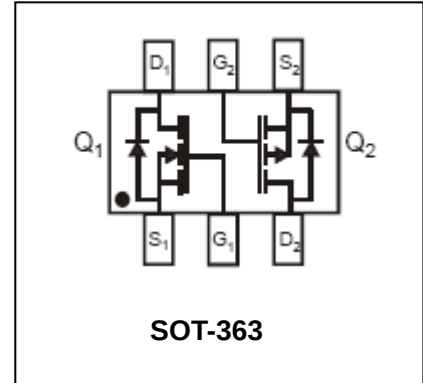
Complementary Pair Enhancement Mode Field Effect Transistor

BSS8402DW

FEATURES

- Low On-Resistance.
- Low Gate Threshold Voltage.
- Low Input Capacitance.
- Fast Switching Speed.
- Low Input/Output Leakage.
- Complementary Pair.

HF



ORDERING INFORMATION

Type No.	Marking	Package Code
BSS8402DW	KNP	SOT-363

MAXIMUM RATING – Total Device @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
P_D	Power Dissipation	200	mW
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	625	°C/W
T_J, T_{STG}	Junction and Storage Temperature	-55 to +150	°C

Maximum Ratings N-CHANNEL –Q₁, 2N7002 Section

@ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	60	V
V_{DGR}	Drain-Gate voltage($R_{GS} \leq 1.0M\Omega$)	60	V
V_{GSS}	Gate -Source voltage	continuous Pulsed	± 20 ± 40 V
I_D	Drain current	continuous continuous@100°C Pulsed	115 73 800 mA

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Maximum Ratings P-CHANNEL –Q₂, BSS84 Section

@ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V _{DSS}	Drain-Source voltage	-50	V
V _{DGR}	Drain-Gate voltage(R _{GS} ≤1.0MΩ)	-50	V
V _{GSS}	Gate -Source voltage continuous	± 20	V
I _D	Drain current continuous	-130	mA

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Q₁, 2N7002 Section

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =10μA	60	70	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	-	2.5	
Gate-body Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±1	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
		V _{DS} =60V, V _{GS} =0V, T _j =125°C	-	-	500	
On-state Drain Current	I _{D(on)}	V _{GS} =10V, V _{DS} =7.5V	0.5	1.0	-	A
Drain-Source on-voltage	V _{DS(on)}	V _{GS} =10V, I _D =500mA	-	0.6	3.75	V
		V _{GS} =5V, I _D =50mA	-	0.09	1.5	
Forward transconductance	g _{FS}	V _{DS} =10V, I _D =200mA	80	-	-	mS
Static drain-Source on-resistance	R _{DS(on)}	V _{GS} =5.0V, I _D =50mA	-	3.2	7.5	Ω
		V _{GS} =10V, I _D =500mA, T _j =125°C	-	4.4	13.5	
Input capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	22	50	pF
Output capacitance	C _{OSS}		-	11	25	
Reverse transfer capacitance	C _{RSS}		-	2	5	
Turn-On Delay Time	t _{D(on)}	V _{DD} = 30V, I _D = 0.2A, R _L = 150Ω, V _{GS} = 10V,	-	7	20	ns
Turn-Off Delay Time	t _{D(off)}	R _{GEN} = 25Ω	-	11	20	ns

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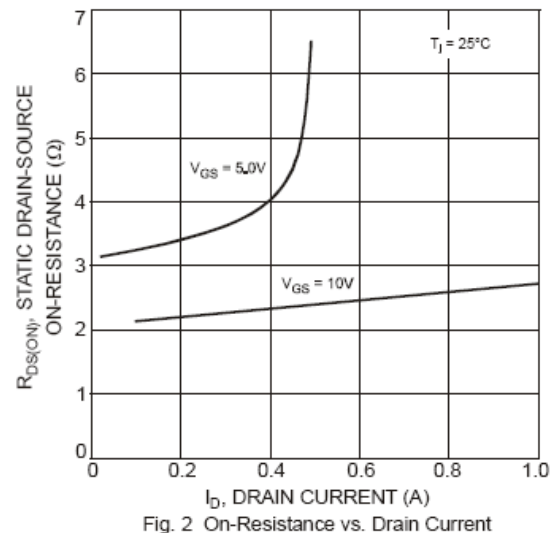
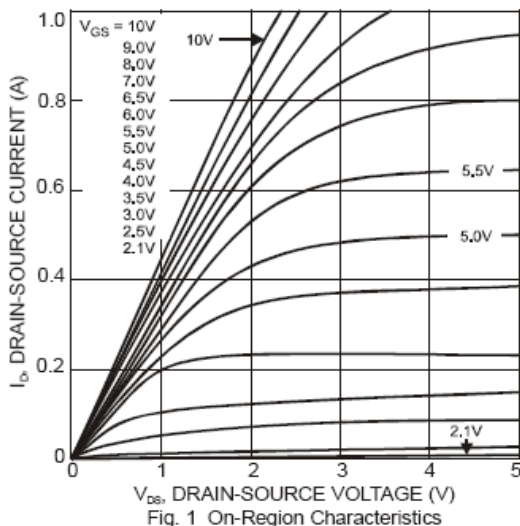
BSS8402DW

ELECTRICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Q₂,BSS84 Section

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-50	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-1mA$	-0.8	-	-2	
Gate-body Leakage Forward Reverse	I_{GSS}	$V_{DS}=0V, V_{GS}=20V$ $V_{DS}=0V, V_{GS}=-20V$	-	-	100 -100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-50V, V_{GS}=0V, T_j=25^\circ\text{C}$	-	-	-15	uA
		$V_{DS}=-50V, V_{GS}=0V, T_j=125^\circ\text{C}$	-	-	-60	
		$V_{DS}=-25V, V_{GS}=0V, T_j=25^\circ\text{C}$	-	-	-100	nA
Forward transconductance	g_{FS}	$V_{DS}=-25V, I_D=-0.1A$	0.05	-	-	S
Static drain-Source on-resistance	$R_{DS(on)}$	$V_{GS}=-5V, I_D=-0.1A$	-	-	10	Ω
On-state drain current	$I_{D(on)}$	$V_{GS}=10V, V_{DS}=7.5V$	0.5	1.0	-	A
Input capacitance	C_{ISS}	$V_{DS}=-25V, V_{GS}=0V, f=1.0MHz$	-	-	45	pF
Output capacitance	C_{OSS}		-	-	25	
Reverse transfer capacitance	C_{RSS}		-	-	12	
Turn-On Delay Time	$t_{D(on)}$	$V_{DD}=-30V, I_D=-0.27A,$ $V_{GS}=-10V, R_{GEN}=50\Omega$	-	10	-	ns
Turn-Off Delay Time	$t_{D(off)}$		-	18	-	ns

TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



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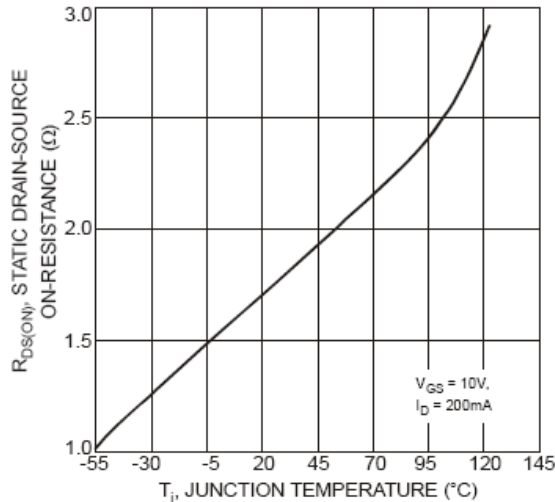


Fig. 3 On-Resistance vs. Junction Temperature

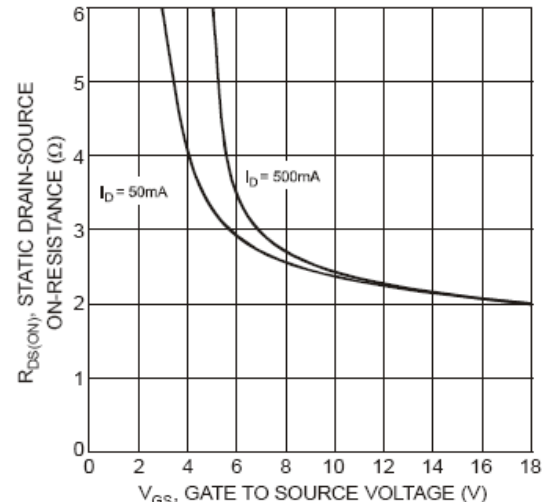


Fig. 4 On-Resistance vs. Gate-Source Voltage

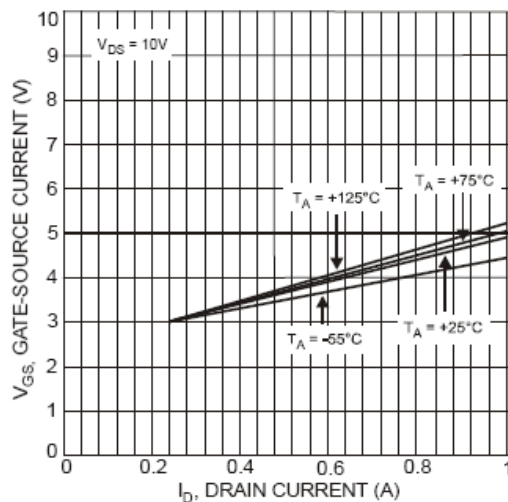


Fig. 5 Typical Transfer Characteristics

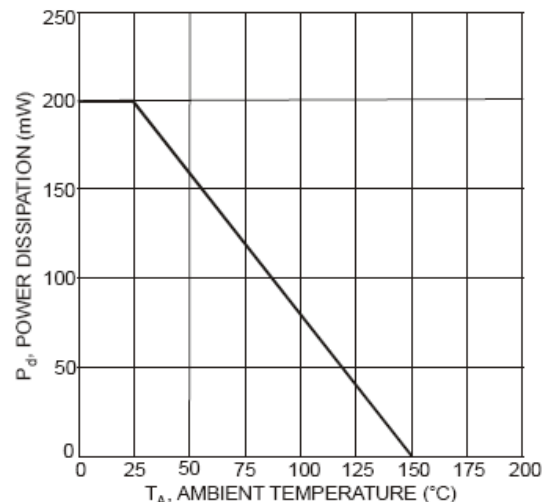


Fig. 6 Max Power Dissipation vs. Ambient Temperature

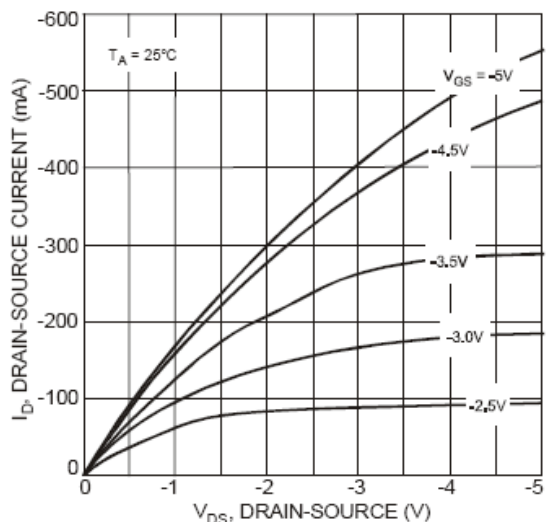


Fig. 7 Drain-Source Current vs. Drain-Source Voltage

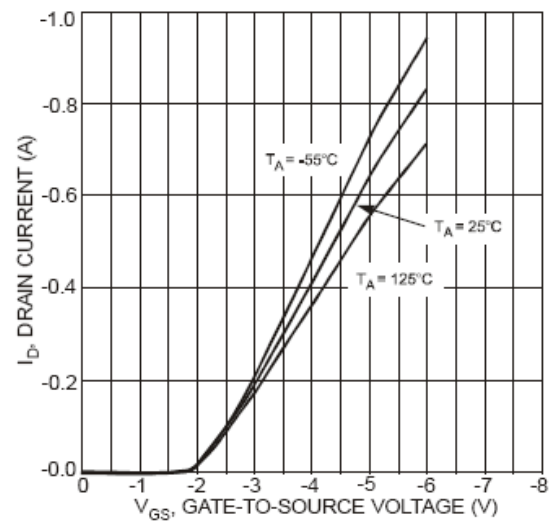
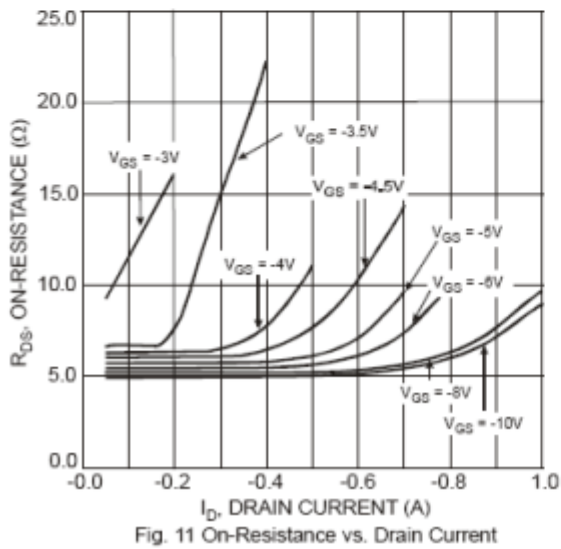
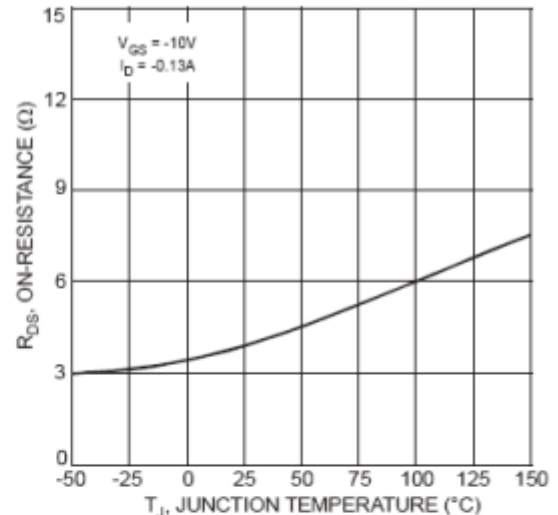
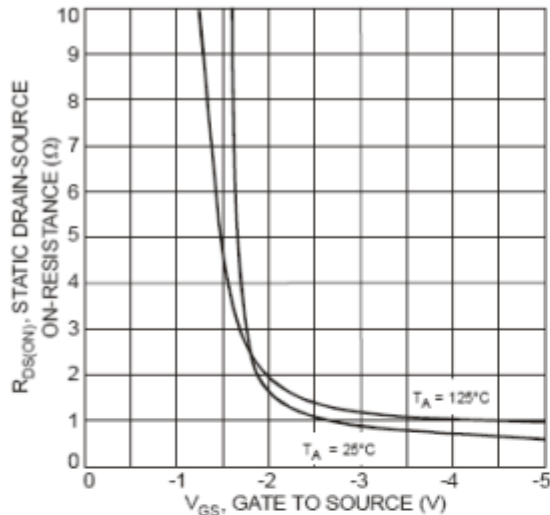


Fig. 8 Drain Current vs. Gate-Source Voltage

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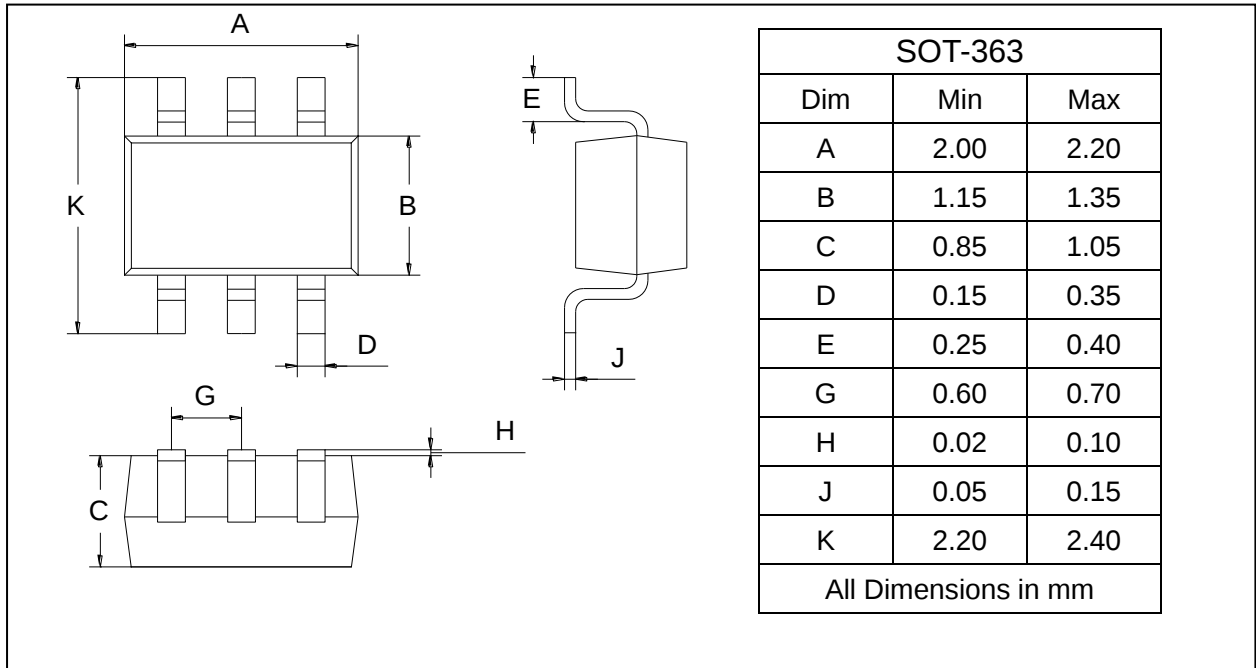


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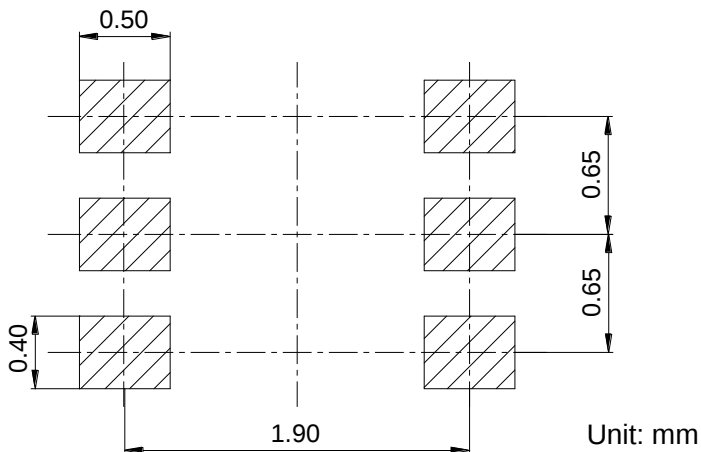
PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BSS8402DW	SOT-363	3000pcs / Tape & Reel