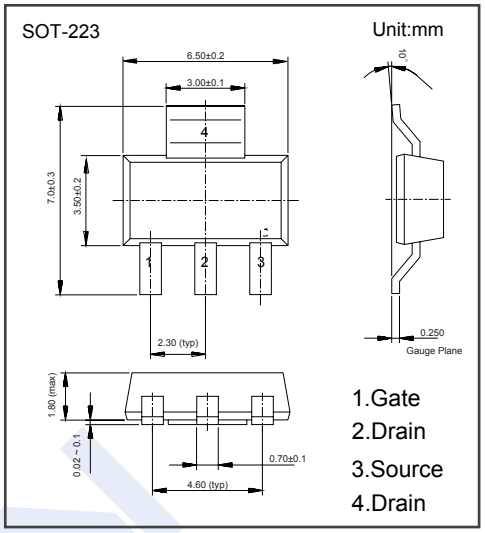
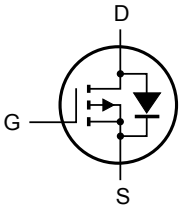
P-Channel MOSFET

BSP230 (KSP230)



■ Features

- V_{DS} (V) =-300V
- I_D =-0.21 A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 17Ω (V_{GS} =-10V)
- High-speed switching



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-300	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	-0.21	A
Pulsed Drain Current	I_{DM}	-0.75	
Power Dissipation	P_D	1.5	W
Thermal Resistance.Junction- to-Ambient	R_{thJA}	83.3	℃/W
Junction Temperature	T_J	150	℃
Junction Storage Temperature Range	T_{stg}	-65 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-300			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-240V, V_{GS}=0V			-100	nA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-1mA	-1.7		-2.55	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-170mA			17	Ω
Forward Transconductance	g_{FS}	V_{DS}=-25V, I_D=-170mA	100			ms
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-25V, f=1MHz			90	pF
Output Capacitance	C_{oss}				30	
Reverse Transfer Capacitance	C_{rss}				15	
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=0 to -10V, V_{DS}=-50 V, I_D=-250mA			10	ns
Turn-Off DelayTime	$t_{d(off)}$				30	

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■ Typical Characterisitics

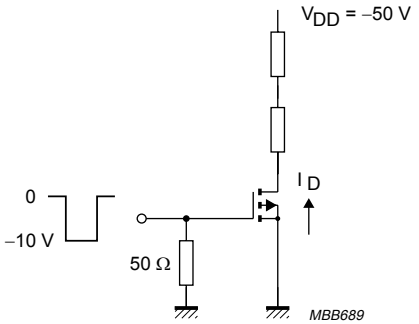


Fig.1 Switching time test circuit.

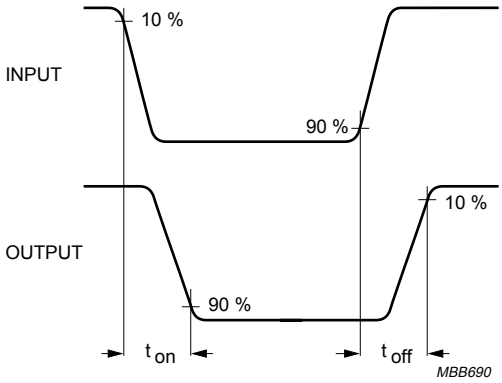


Fig.2 Input and output waveforms.

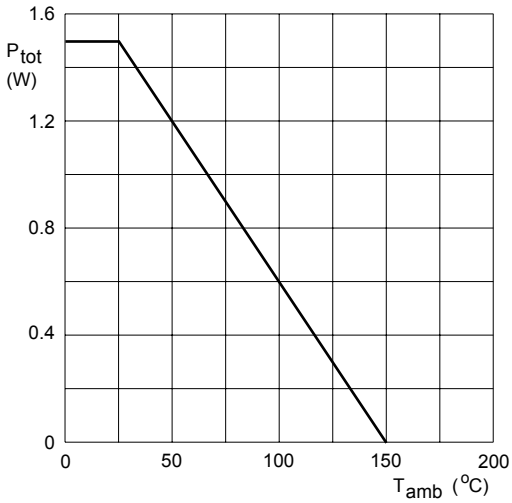
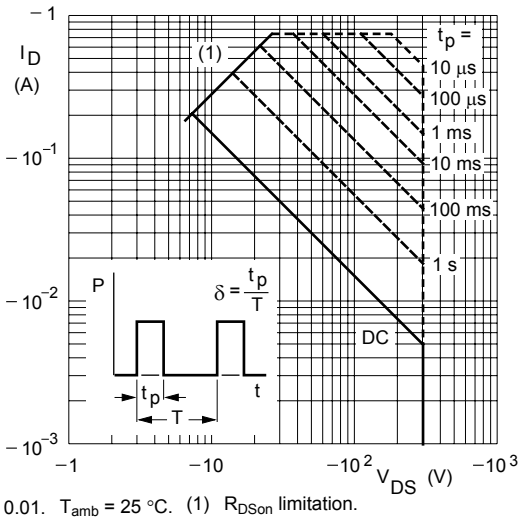
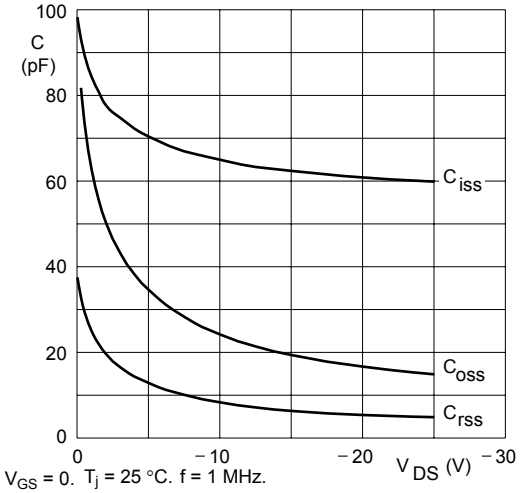


Fig.3 Power derating curve.



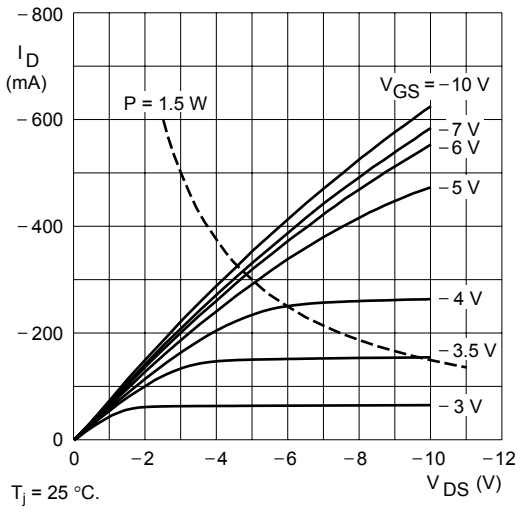
δ = 0.01. T_{amb} = 25 °C. (1) R_{DSon} limitation.

Fig.4 DC SOAR.



V_{GS} = 0. T_j = 25 °C. f = 1 MHz.

Fig.5 Capacitance as a function of drain source voltage; typical values.



T_j = 25 °C.

Fig.6 Typical output characteristics.

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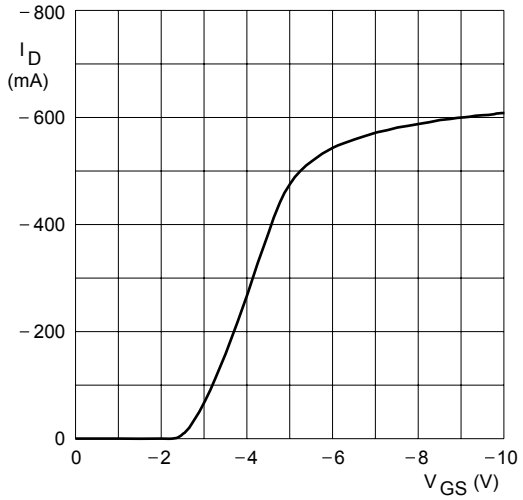
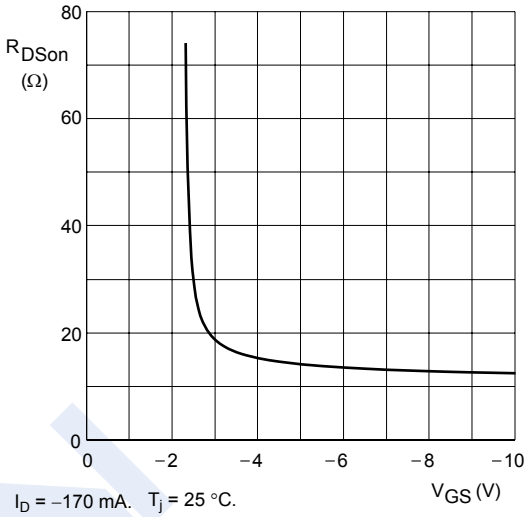
■ Typical Characterisitics



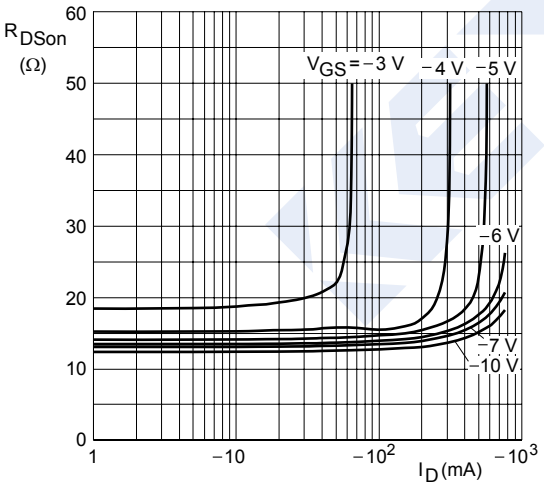
V_{DS} = −25 V. T_j = 25 °C.

Fig.7 Typical transfer characteristics.



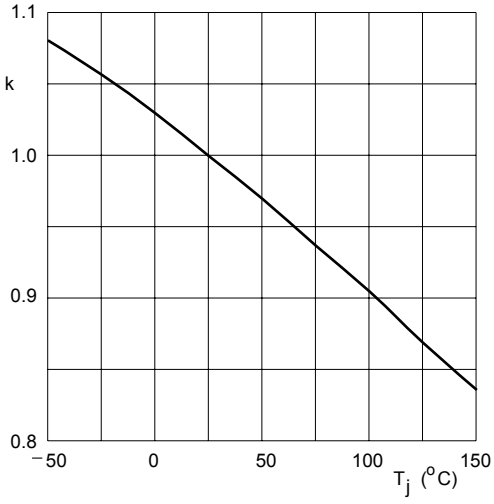
I_D = −170 mA. T_j = 25 °C.

Fig.8 Drain-source on-state resistance as a function of gate-source voltage; typical values.



T_j = 25 °C.

Fig.9 Drain-source on-state resistance as a function of drain current; typical values.



$$k = \frac{V_{GSth} \text{ at } T_j}{V_{GSth} \text{ at } 25°C}$$

Typical V_{GSth} at I_D = −1 mA; V_{DS} = V_{GS}.

Fig.10 Temperature coefficient of gate-source threshold voltage.

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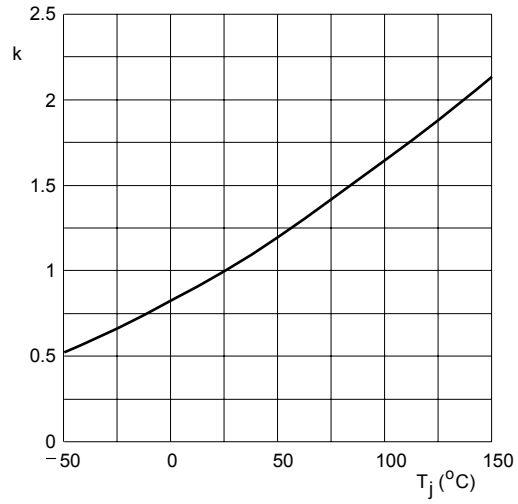
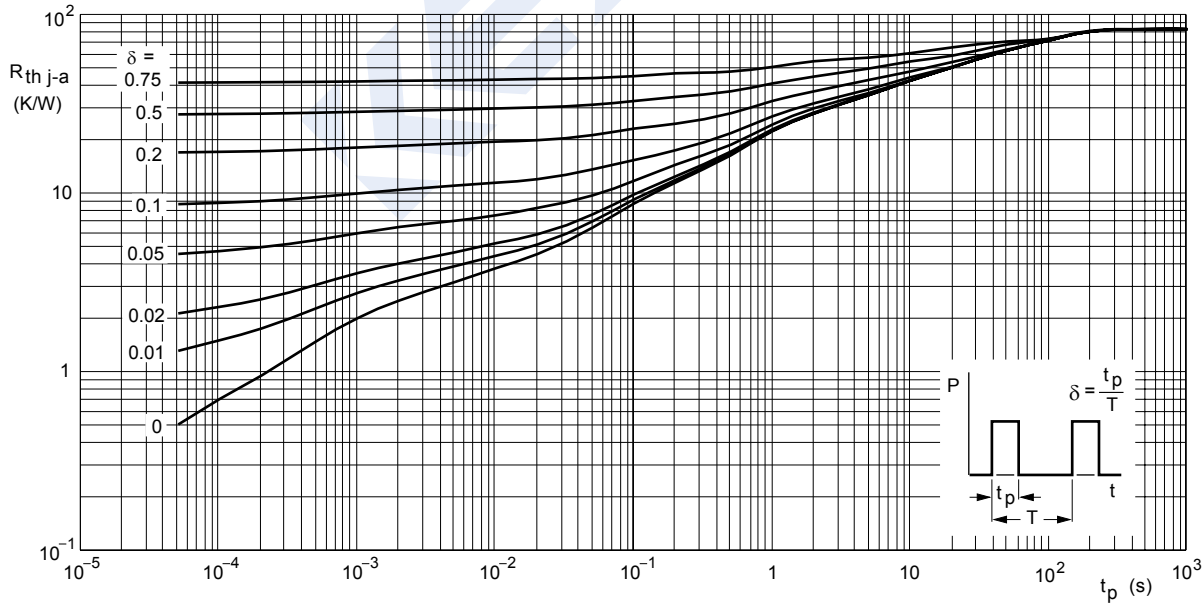
■ Typical Characterisitics



$$k = \frac{R_{DSon} \text{ at } T_j}{R_{DSon} \text{ at } 25\ °C}$$

Typical R_{DSon} at I_D = −170 mA; V_{GS} = −10 V.

Fig.11 Temperature coefficient of drain-source on-state resistance.



T_{amb} = 25 °C.

Fig.12 Transient thermal resistance from junction to ambient as a function of pulse time; typical values.