

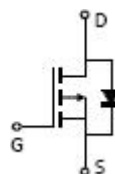
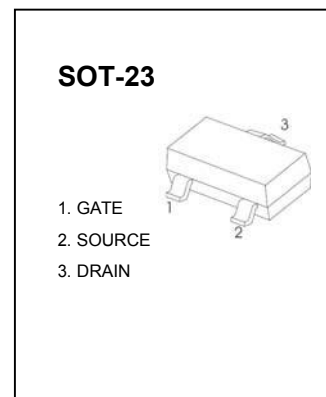
SOT-23 Plastic-Encapsulate MOSFETS

P-Channel Enhancement Mode Field Effect Transistor

General Description

The CB40P05 uses advanced trench technology to provide excellent $R_{DS(on)}$ with low gate charge. This device is suitable for use as a load switch or in PWM applications.

MARKING: 40P05



Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5.3	A
Power Dissipation	P_D	350	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^\circ\text{C}$

Electrical characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} = 0V, I _D =-250μA	-40			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-36V,V _{GS} = 0V			-1	μA
Gate-source leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} =-10V, I _D =-5A			85	mΩ
		V _{GS} =-4.5V, I _D =-4A			125	mΩ
Forward tranconductance (note 1)	g _{FS}	V _{DS} =-5V, I _D =-3A		5		S
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1		-3	V
Diode forward voltage (note 1)	V _{SD}	I _S =-3.3 A,V _{GS} =0V			-1.2	V
Dynamic characteristics (note 2)						
Input capacitance	C _{iss}	V _{DS} =-20V,V _{GS} =0V,f =1MHz		600		pF
Output capacitance	C _{oss}			90		pF
Reverse transfer capacitance	C _{rss}			70		pF
Switching Characteristics (note 2)						
Turn-on delay time	t _{d(on)}	V _{GS} =-10V,V _{DS} =-20V, R _L =2Ω,R _{GEN} =3Ω		9		ns
Turn-on rise time	t _r			8		ns
Turn-off delay time	t _{d(off)}			28		ns
Turn-off fall time	t _f			10		ns

Notes:

1. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. These parameters have no way to verify.

Typical Characteristics

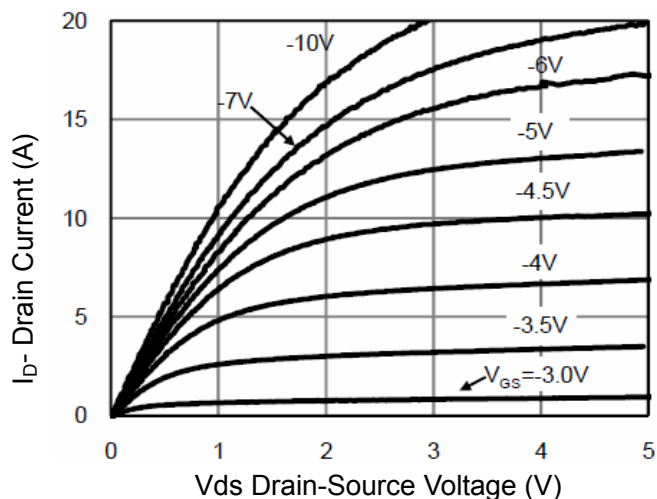


Figure 1 Output Characteristics

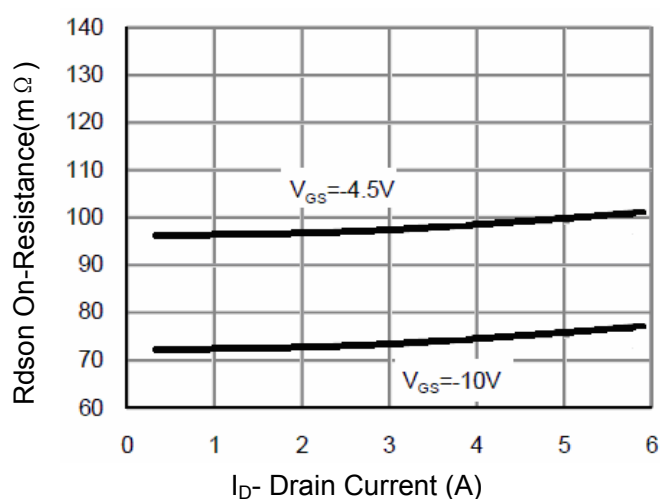


Figure 2 Drain-Source On-Resistance

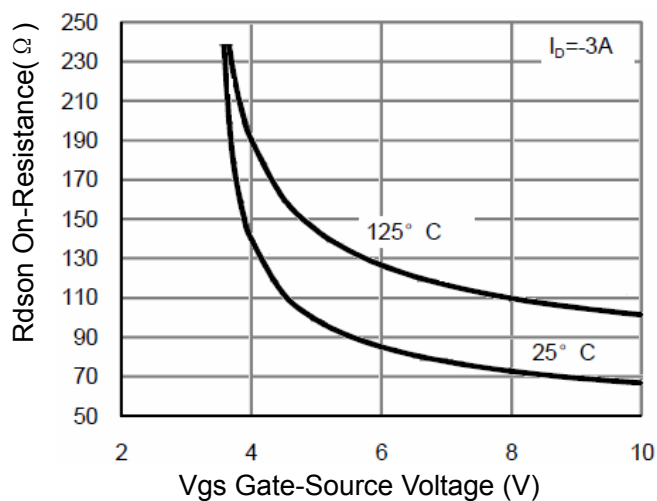


Figure 3 $R_{DS(on)}$ vs V_{GS}

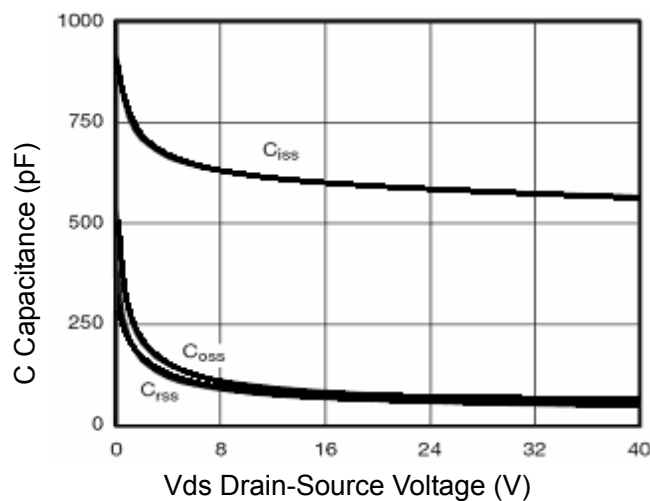


Figure 4 Capacitance vs V_{DS}

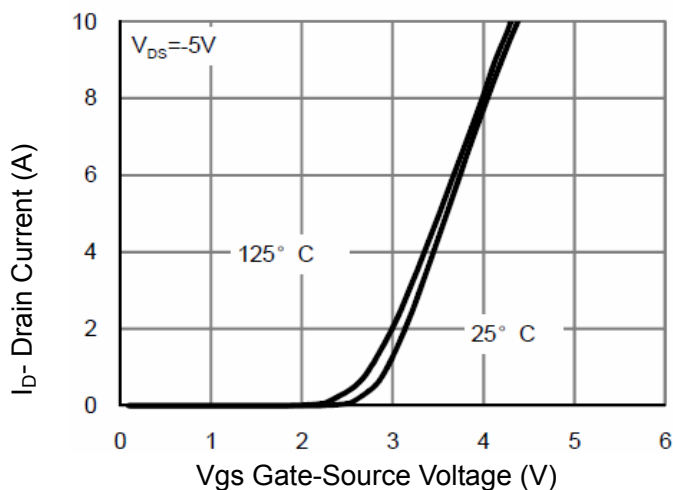


Figure 5 Transfer Characteristics

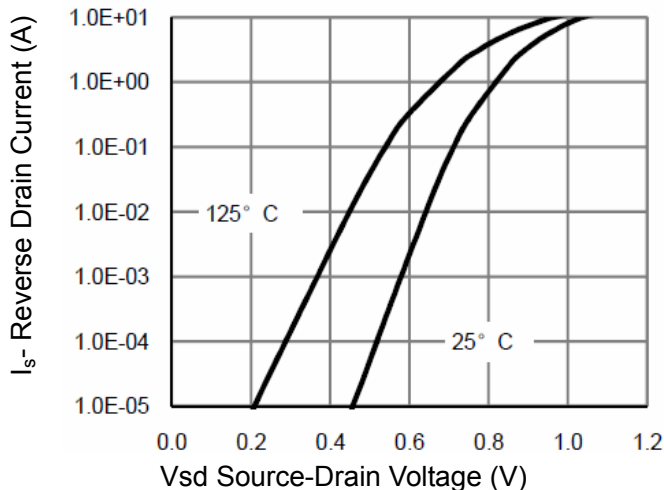


Figure 6 Source-Drain Diode Forward