



20V N-MOS

● Features

- $R_{DS(ON)} < 360m\Omega @ V_{GS} = 4.5V$
- $R_{DS(ON)} < 420m\Omega @ V_{GS} = 2.5V$
- $R_{DS(ON)} < 560m\Omega @ V_{GS} = 1.8V$
- Low Offset (Error) Voltage
- Low-Voltage Operation
- High-Speed Circuits
- Low Battery Voltage Operation
- FBP1006-3 package design

● APPLICATIONS

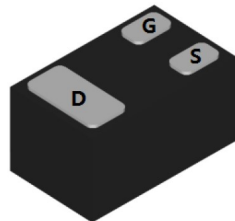
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

● General Description

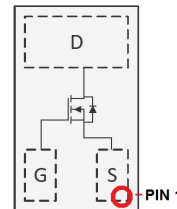
FS2022, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

● Pin Configurations



FBP1006-3



Pin configuration (Top view)

● Absolute Maximum Ratings @ $T_A = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Ratings	Unit
Drain - Source Voltage	V_{DSS}	20	V
Gate -Source Voltage	V_{GS}	± 12	V
Drain Current (Continuous)	I_D	0.70	A
Drain Current (Pulse)	I_{DP}	1.0	A
Power Dissipation	P_D	0.27	W
Operating Temperature	T_J	-55~150	$^\circ C$
Storage Temperature	T_{STG}	-55~150	$^\circ C$



● **Electrical Characteristics** @ $T_A=25^\circ\text{C}$ unless otherwise noted

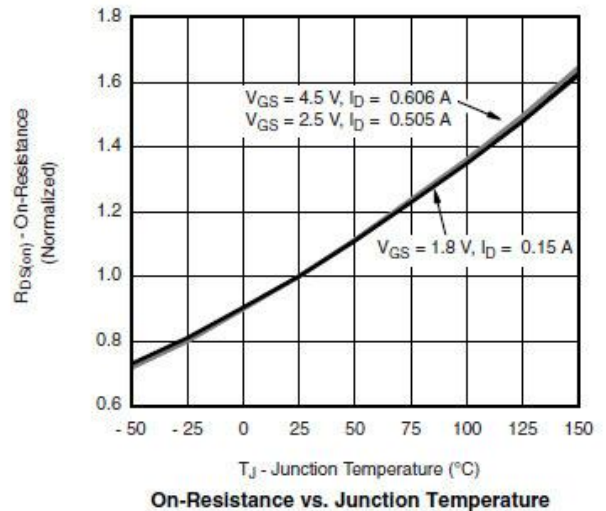
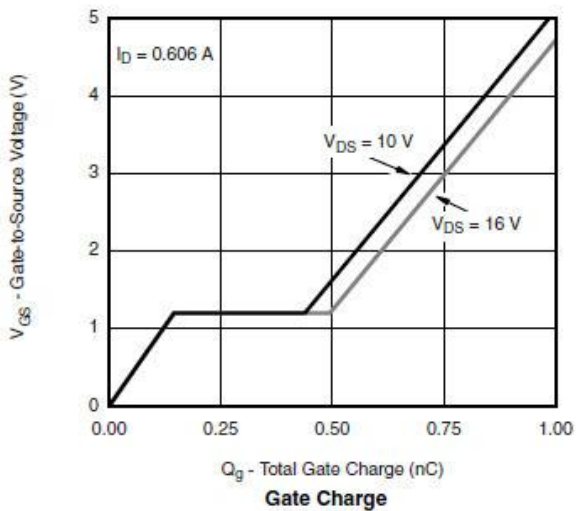
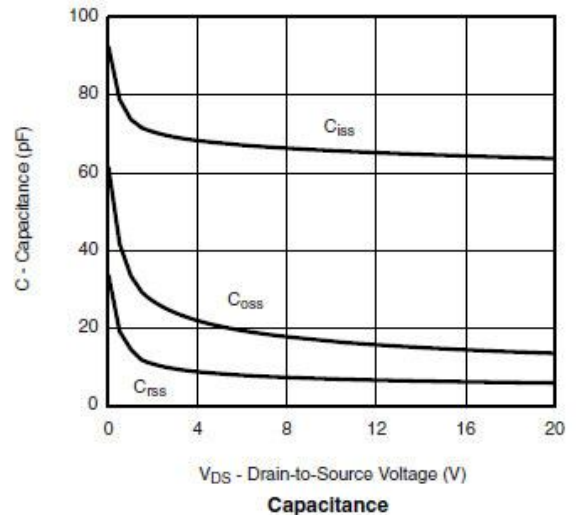
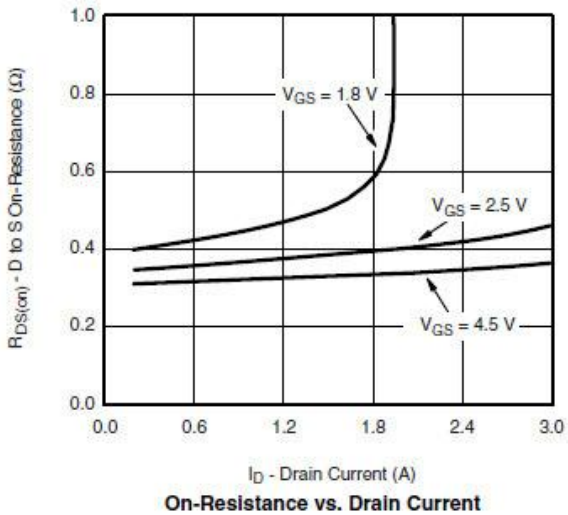
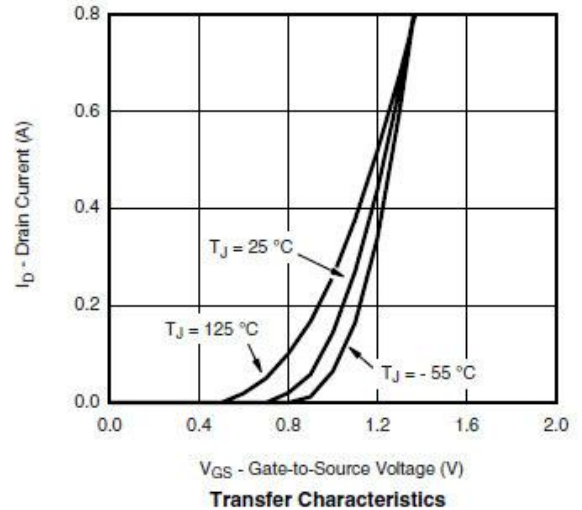
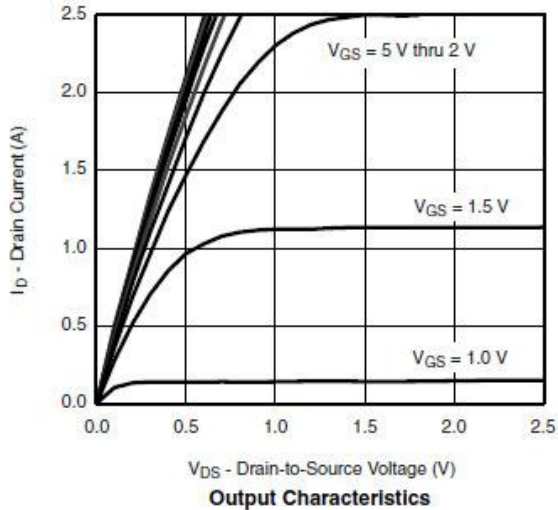
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu A$	20			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\ \mu A$	0.4		1.0	
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 12V$			± 0.1	μA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$			1	
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=0.8A$		300	360	$m\ \Omega$
		$V_{GS}=2.5V, I_D=0.7A$		340	420	
		$V_{GS}=1.8V, I_D=0.6A$		420	560	
G_{FS}	Forward Transconductance	$V_{DS}=10V, I_D=0.4A$		1.0		S
V_{SD}	Diode Forward Voltage	$I_S=0.15A, V_{GS}=0V$		0.65	1.2	V
DYNAMIC						
$Q_{g(TOT)}$	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V, I_D=0.6A$		1.06		nC
Q_{gs}	Gate-Source Charge			0.18		
Q_{gd}	Gate-Drain Charge			0.32		
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		70		pF
C_{oss}	Output Capacitance			20		
C_{rss}	Reverse Transfer Capacitance			8		
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=10V, R_G=1\ \Omega$ $I_D=0.5A, V_{GS}=4.5V, R_L=20\ \Omega$		18	26	ns
t_r	Rise Time			20	28	
$t_{d(off)}$	Turn-Off Delay Time			70	110	
t_f	Fall Time			25	40	

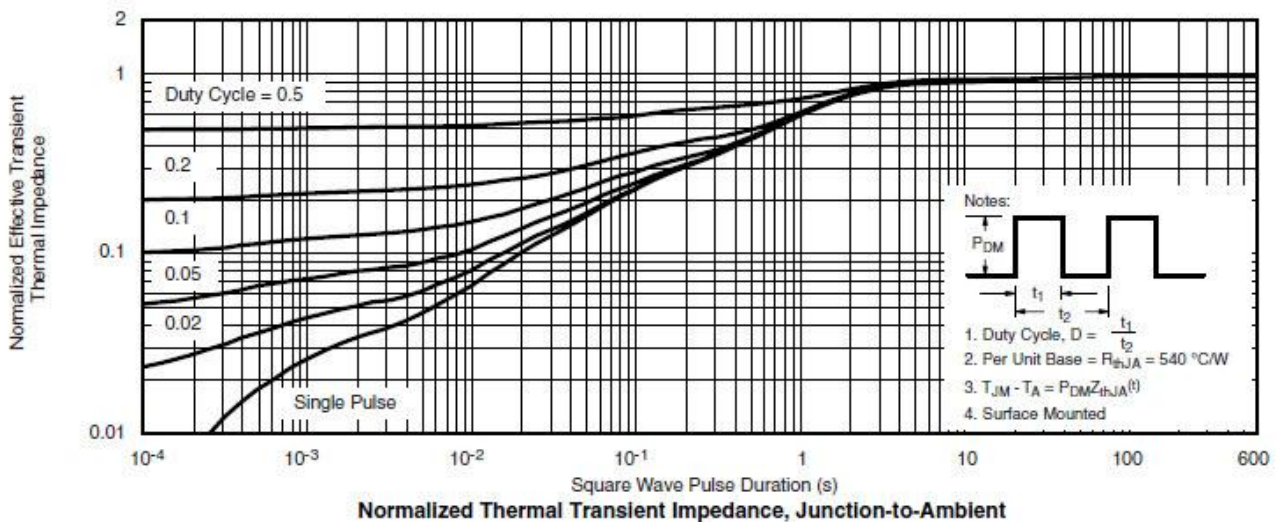
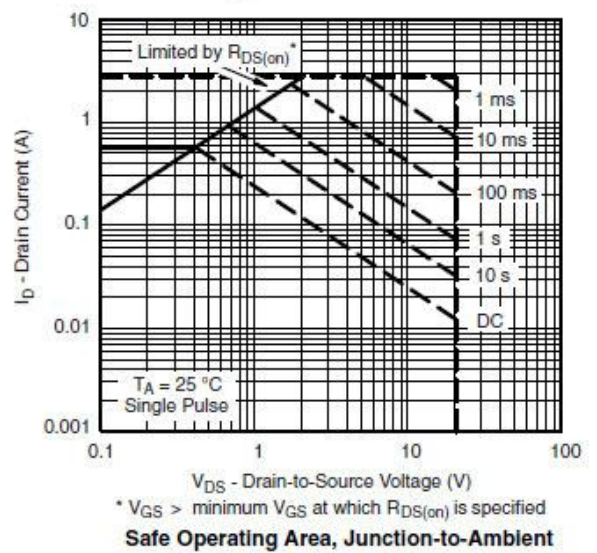
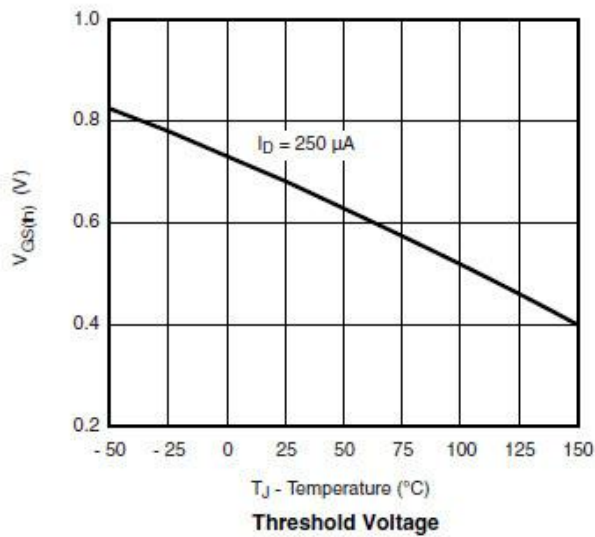
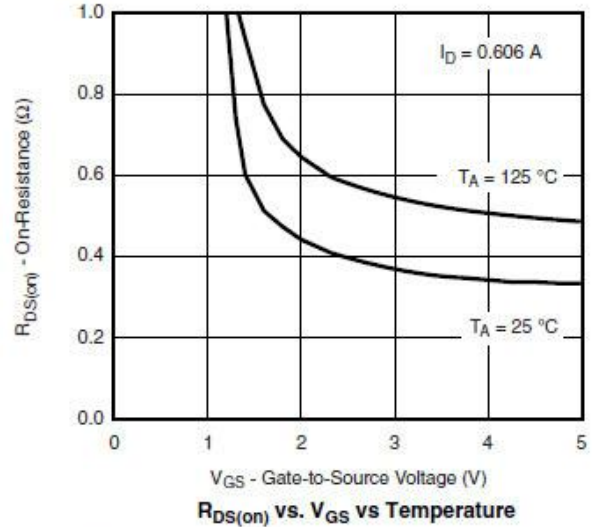
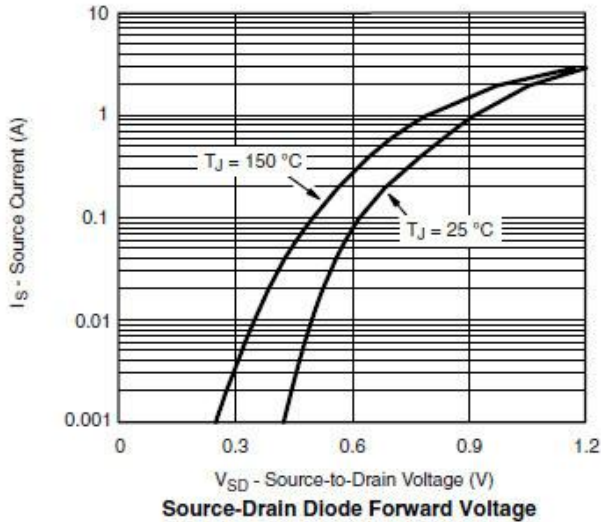
Notes:

1. Pulse width limited by maximum junction temperature. Pulse test: $PW \leq 300\ \mu s$, duty cycle $\leq 2\%$.
2. For design AID only, not subject to production testing. Switching time is essentially independent of operating temperature.



● Typical Performance Characteristics







- Package Information (FBP1006-3)

WBFBP-03E (1.0×0.6×0.5)

