



General Description

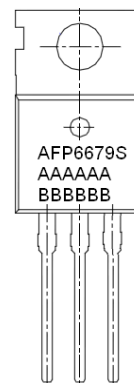
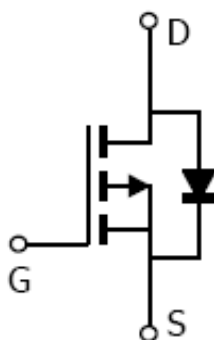
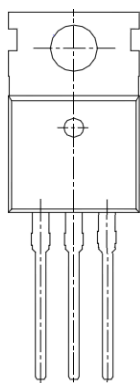
AFP6679S, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- -30V/-20A, $R_{DS(ON)} = 9.8m\Omega @ V_{GS} = -10V$
- -30V/-15A, $R_{DS(ON)} = 14m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- TO-220-3L package design

Pin Description (TO-220-3L)



Application

- Power Switch
- Load switch in high current applications
- DC/DC converters

Pin Define

Pin	Symbol	Description
1	G	Gate
2	D	Drain
3	S	Source

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP6679ST220TG	AFP6679S AAAAAA BBBBBB	TO-220-3L	Tube	50 EA

※ A Lot code

※ B Date code

※ AFP6679ST220TG : Tube ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	-30	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(T _J =150°C)	I _D	T _C =25°C -45.0	A
		T _C =70°C -45.0	
Pulsed Drain Current	I _{DM}	-100	A
Avalanche Current	I _{AS}	-35	A
Single Avalanche Energy	E _{AS}	61	mJ
Power Dissipation	P _D	75	W
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	62.5	°C/W

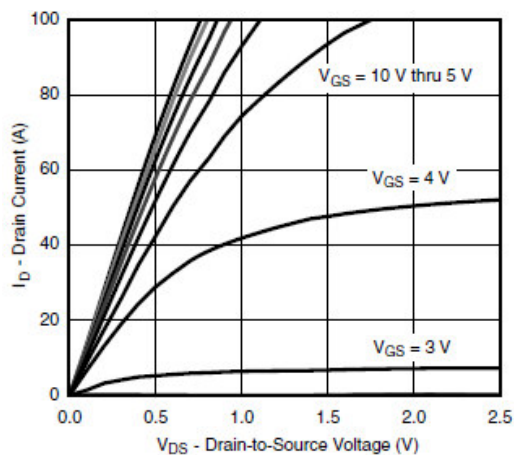
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

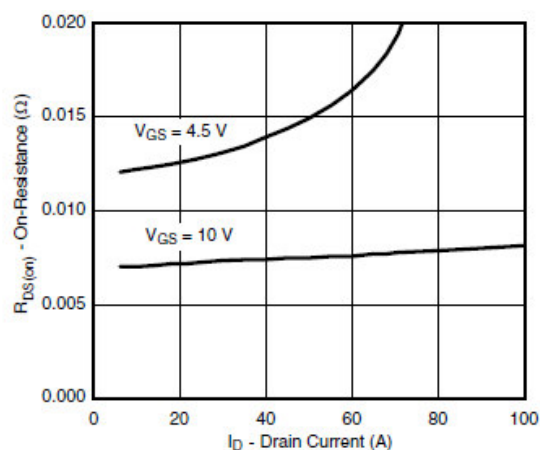
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0		-3.0	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	uA
		V _{DS} =-24V, V _{GS} =0V T _A =85°C			-30	
On-State Drain Current	I _{D(on)}	V _{DS} ≤ -10V, V _{GS} =-10V	-50			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10.0V, I _D =-20A		8.8	9.8	mΩ
		V _{GS} =-4.5V, I _D =-15A		12.5	14	
Forward Transconductance	g _{FS}	V _{DS} =-15V, I _D =-20A		45		S
Diode Forward Voltage	V _{SD}	I _S =-10A, V _{GS} =0V		-0.7	-1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V I _D =-20A		60	90	nC
Gate-Source Charge	Q _{gs}			10		
Gate-Drain Charge	Q _{gd}			15		
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V f=1MHz		2750		pF
Output Capacitance	C _{oss}			515		
Reverse Transfer Capacitance	C _{rss}			445		
Turn-On Time	t _{d(on)}	V _{DD} =-15V, R _L =1.5Ω I _D =-10A, V _{GEN} =-10V R _G =1Ω		12	20	ns
	t _r			11	20	
Turn-Off Time	t _{d(off)}			40	60	
	t _f			12	20	



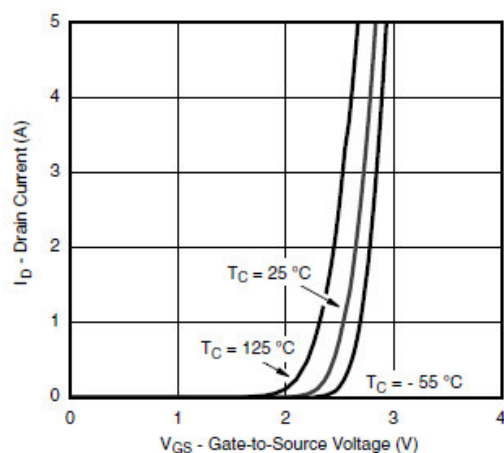
Typical Characteristics



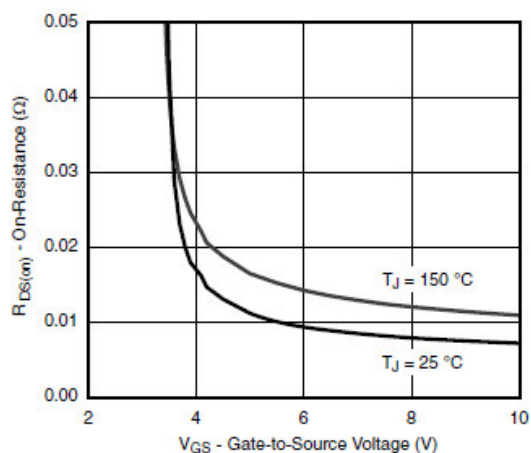
Output Characteristics



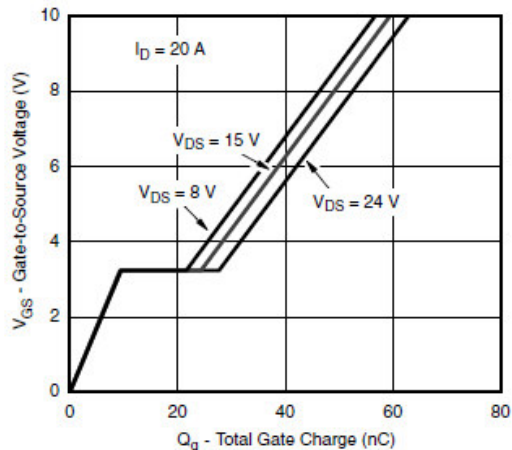
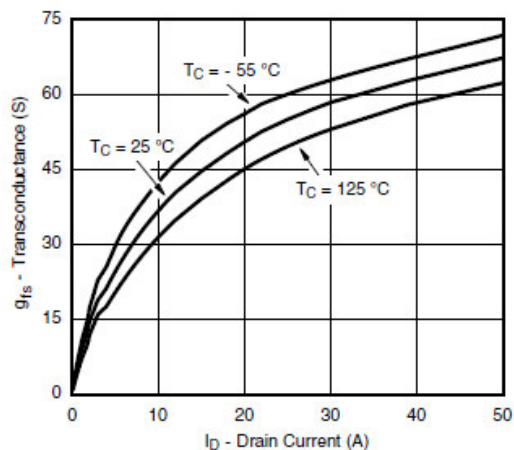
On-Resistance vs. Drain Current



Transfer Characteristic

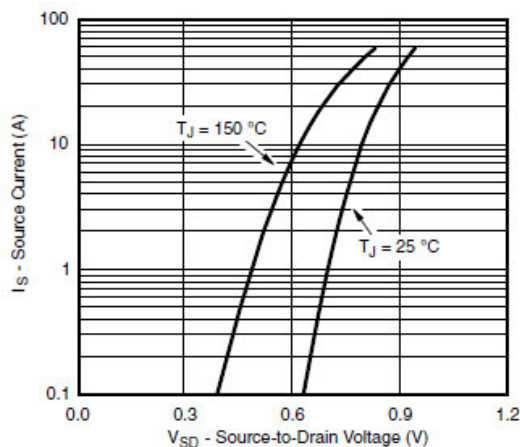


On-Resistance vs. Gate-to-Source Voltage

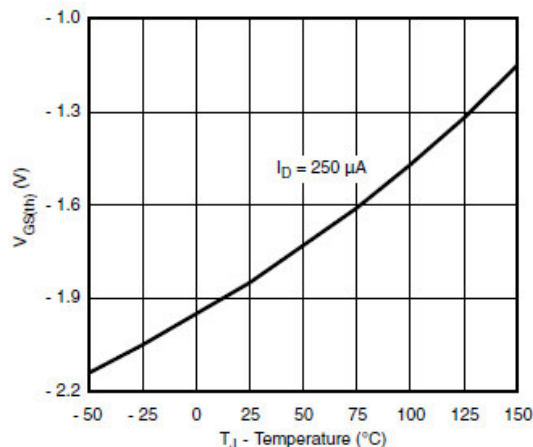




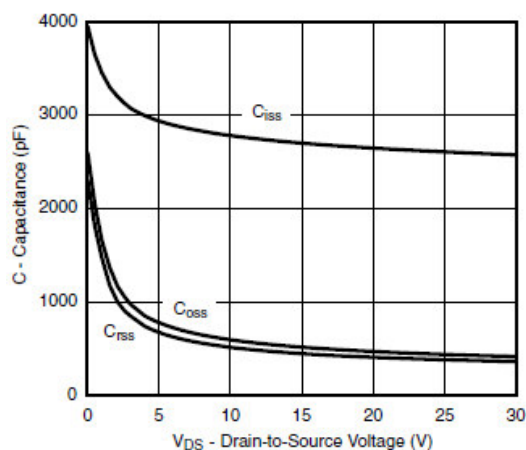
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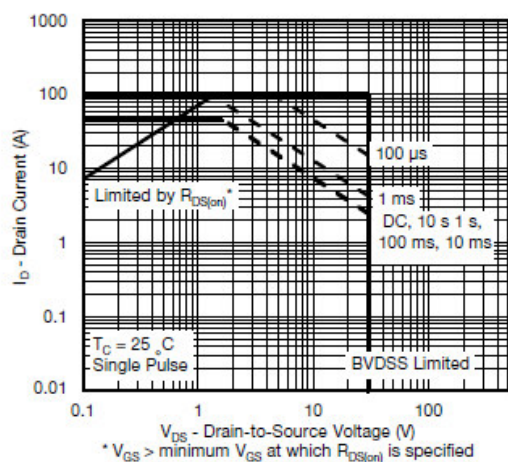
Source-Drain Diode Forward Voltage



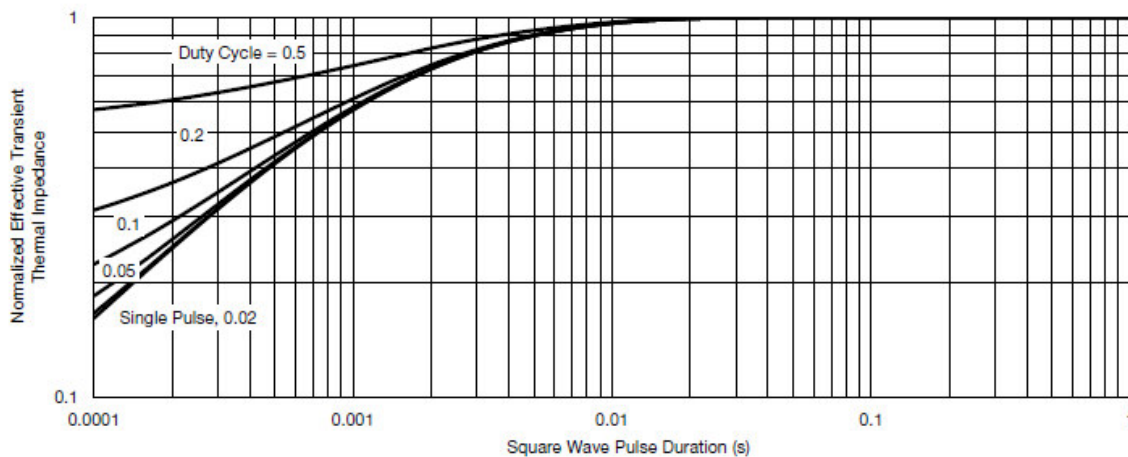
Threshold Voltage



Capacitance



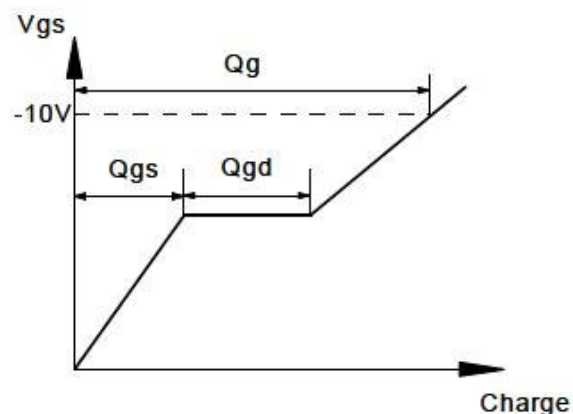
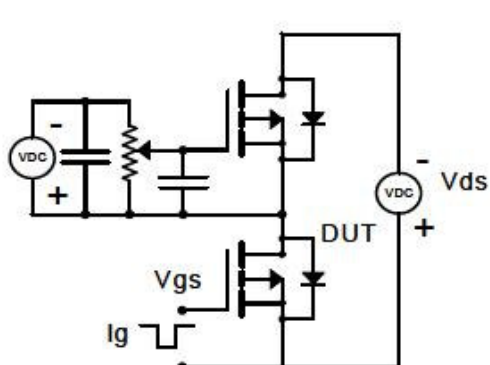
Safe Operating Area



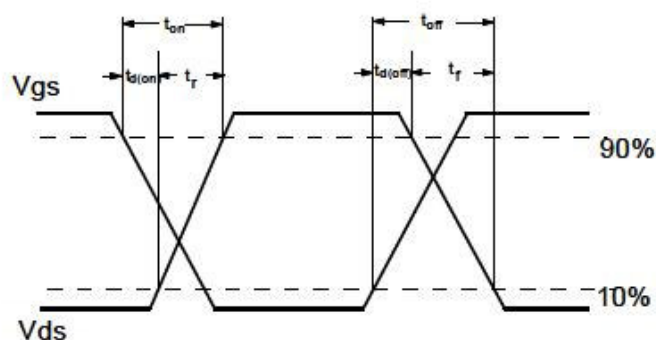
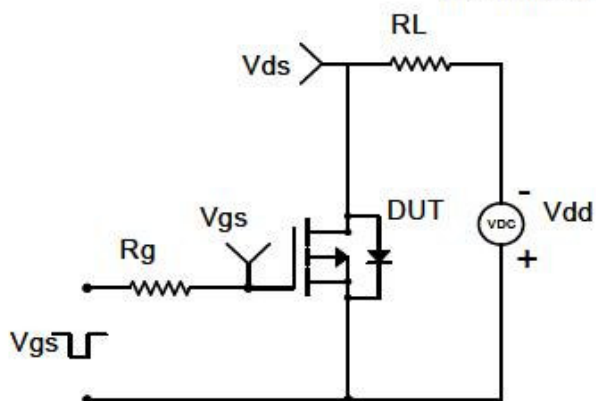


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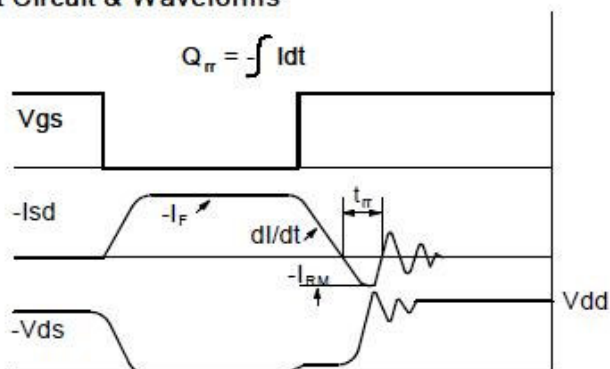
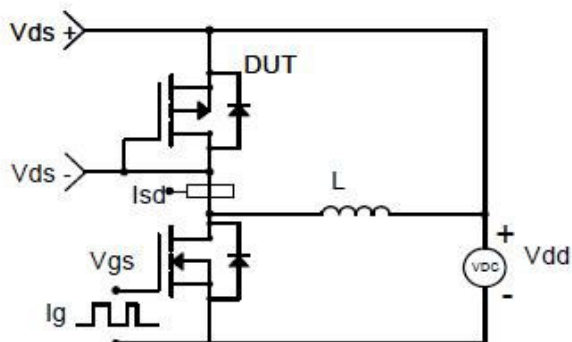
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

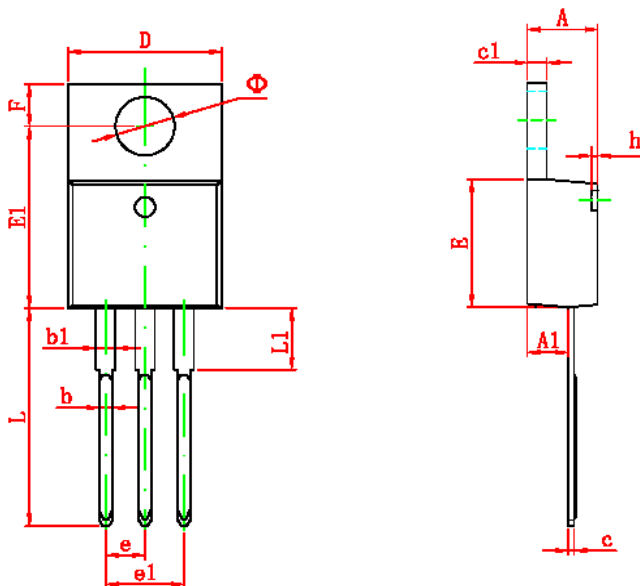


Diode Recovery Test Circuit & Waveforms





Package Information (TO-220-3L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
• •	3.735	3.935	0.147	0.155

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