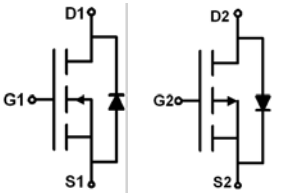
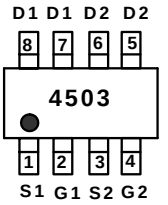
DESCRIPTION

The FTK4503 uses advanced trench technology MOSFET to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFET may be used in power inverters, and other applications.

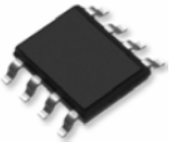


N-channel P-channel

Schematic diagram



Marking and pin Assignment



SOP-8 top view

GENERAL FEATURES

●**N-Channel**

V_{DS} = 30V,I_D = 6.9A

$R_{DS(ON)}$ < 42mΩ @ V_{GS}=4.5V

$R_{DS(ON)}$ < 28mΩ @ V_{GS}=10V

●**P-Channel**

V_{DS} = -30V,I_D = -6.3A

$R_{DS(ON)}$ < 55mΩ @ V_{GS}=-4.5V

$R_{DS(ON)}$ < 36mΩ @ V_{GS}=-10V

●High Power and current handing capability

●Lead free product is acquired

●Surface Mount Package

ABSOLUTE MAXIMUM RATINGS(TA=25℃unless otherwise noted)

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	±20	±20	V
Continuous Drain Current (Note a)	T_A=25℃	I_D	6.9	-6.3	A
	T_A=70℃		5.5	-5.0	
Pulsed Drain Current (Note b)		I_{DM}	20	-20	A
Maximum Power Dissipation	T_A=25℃	P_D	2.0	2.0	W
	T_A=70℃		1.35	1.35	
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	-55 To 150	℃

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note2)	$R_{\theta JA}$	N-Ch	62.5	℃/W
		P-Ch	62.5	

Note :

a. These tests are performed with infinite heat sink.

b. Pulse width by Max. juction temperature.

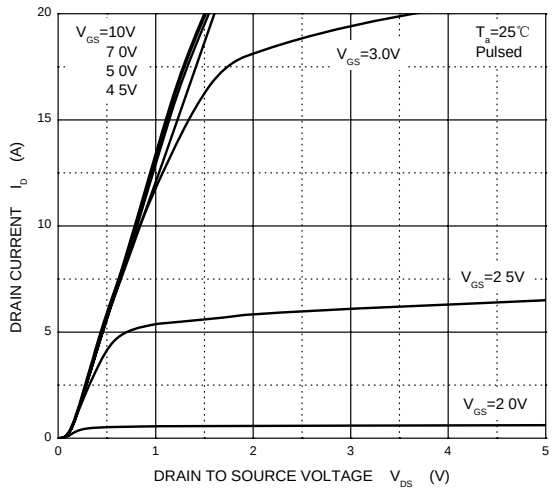
ELECTRICAL CHARACTERISTICS (TA=25℃unless otherwise noted)

Parameter	Symbol	Condition		Min	Typ	Max	Unit
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	N-Ch	30			V
		V_{GS}=0V I_D=-250μA	P-Ch	-30			
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	N-Ch			1	μA
		V_{DS}=-30V,V_{GS}=0V	P-Ch			-1	
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	N-Ch			±100	nA
			P-Ch			±100	
ON CHARACTERISTICS (Note 3)							
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	N-Ch	1	1.9	3	V
		V_{DS}=V_{GS},I_D=-250μA	P-Ch	-1	-1.8	-3	
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=6.0A	N-Ch		22	28	mΩ
		V_{GS}=-10V, I_D=-6.0A	P-Ch		32	36	
		V_{GS}=4.5V, I_D=4A	N-Ch		38	42	
		V_{GS}=-4.5V, I_D=-4A	P-Ch		50	55	
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=6.0A	N-Ch	4			S
		V_{DS}=-10V,I_D=-6.0A	P-Ch	4			
DYNAMIC PARAMETERS							
Input Capacitance	C_{lss}	N-Ch V_{GS}=0V, V_{DS}=25V, f=1MHz	N-Ch			770	pF
			P-Ch			1380	
Output Capacitance	C_{oss}		N-Ch			80	
		P-Ch V_{GS}=0V, V_{DS}=-25V, f=1MHz	P-Ch			150	
Reverse Transfer Capacitance	C_{rss}		N-Ch			75	
			P-Ch			140	
SWITCHING CHARACTERISTICS (Note 4)							
Turn-on Delay Time	$t_{d(on)}$	N-Ch V_{DD}=20V, R_L=20Ω V_{GEN}=10V,R_{GEN}=3Ω	N-Ch		5.0		nS
			P-Ch		8.0		
Turn-on Rise Time	t_r		N-Ch		8.0		nS
			P-Ch		7.0		
Turn-Off Delay Time	$t_{d(off)}$	P-Ch V_{DD}=-15V, R_L=15Ω V_{GEN}=-10V,R_{GEN}=3Ω	N-Ch		18.5		nS
			P-Ch		34		
Turn-Off Fall Time	t_f		N-Ch		9.0		nS
			P-Ch		26		
Total Gate Charge	Q_g	N-Ch V_{DS}=24V,I_D=6.0A, V_{GS}=4.5V	N-Ch			13.5	nC
			P-Ch			20	
Gate-Source Charge	Q_{gs}		N-Ch		1.4		nC
		P-Ch V_{DS}=-24V,I_D=-6A, V_{GS}=-4.5V	P-Ch		2		
Gate-Drain Charge	Q_{gd}		N-Ch		4.7		nC
			P-Ch		7		

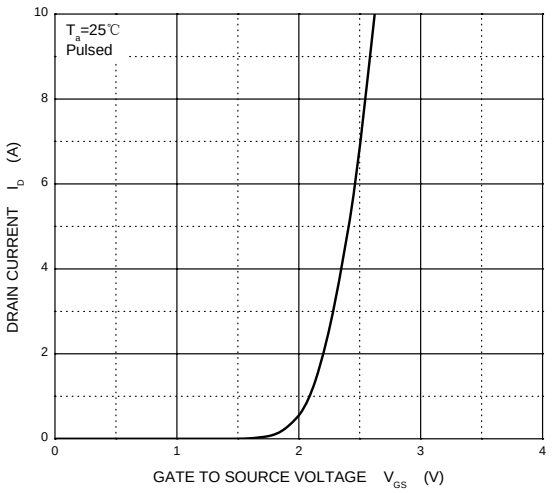
DRAIN-SOURCE DIODE CHARACTERISTICS							
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1.7A	N-Ch			1.2	V
		V_{GS}=0V,I_S=-1.7A	P-Ch			-1.2	V

Typical Characteristics N-Ch

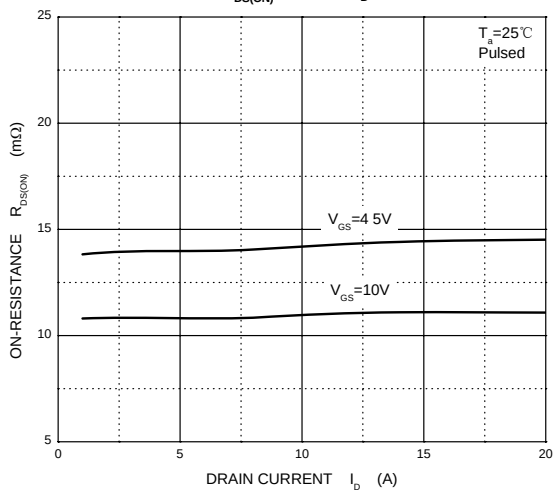
Output Characteristics



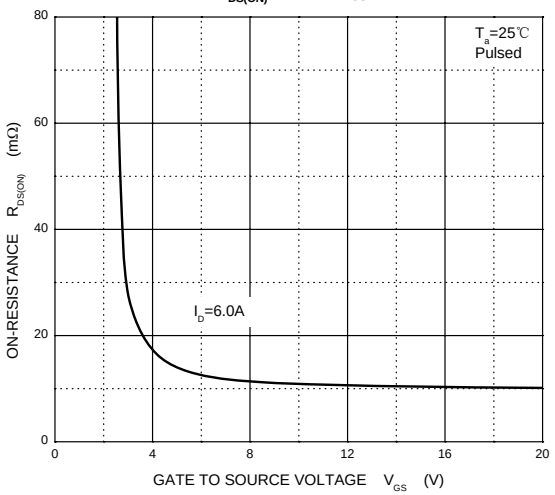
Transfer Characteristics



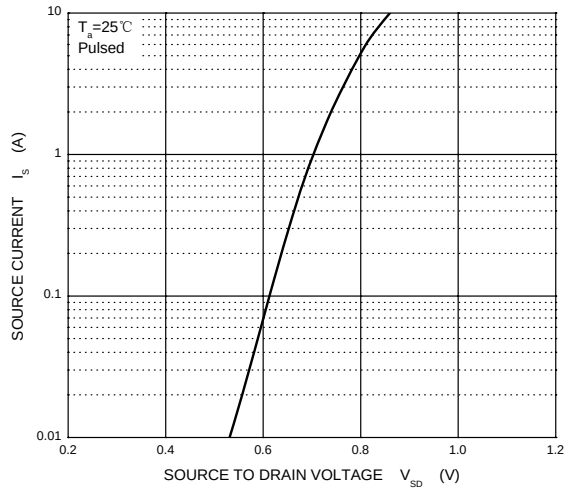
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}

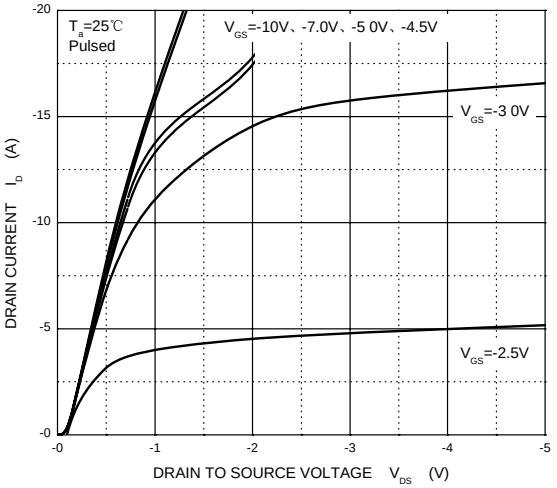


I_S — V_{SD}

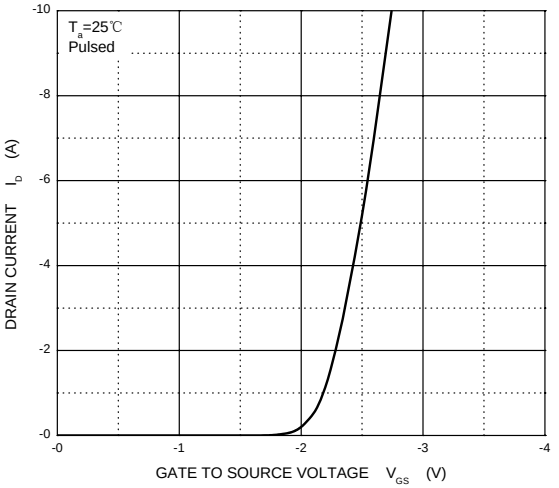


Typical Characteristics P-Ch

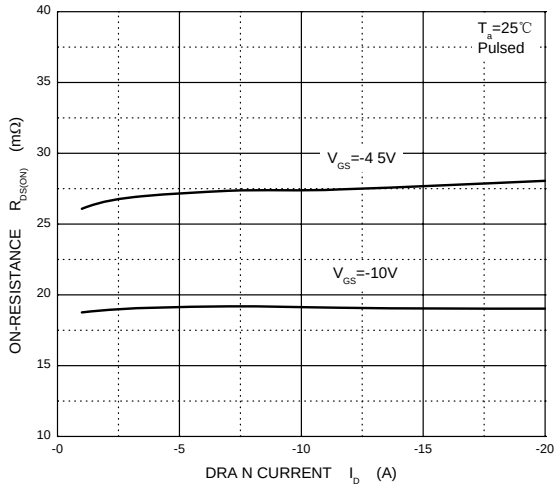
Output Characteristics



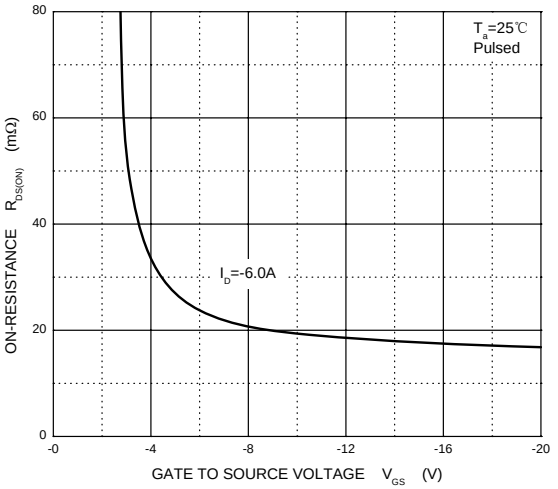
Transfer Characteristics



$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}