

Dual P-Channel Enhancement Mode Field Effect Transistor
◆ DESCRIPTION

These miniature surface mount MOSFETs utilize High Cell Density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry.

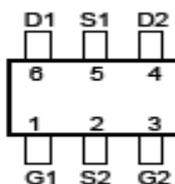
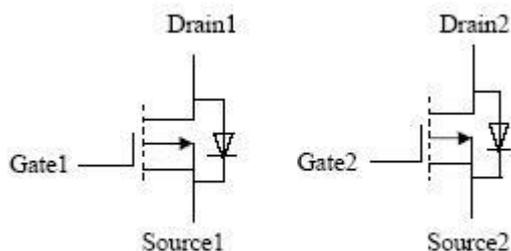
Typical applications are PWM DC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

◆ FEATURES

- -20V/-3.1A, $R_{DS(ON)} = 115m\Omega @ V_{GS} = -4.5V$
- -20V/-2.0A, $R_{DS(ON)} = 180m\Omega @ V_{GS} = -2.5V$
- -20V/-1.0A, $R_{DS(ON)} = 300m\Omega @ V_{GS} = -1.8V$
- Fast switching speed
- TSOP-6 package design

◆ APPLICATIONS

- Inverter
- Portable Equipment
- Load Switch
- DC/DC Converter
- DSC

◆ PIN CONFIGURATION
TSOP-6 (Top view)

MT6803


Dual P-Channel Enhancement Mode Field Effect Transistor
◆ ABSOLUTE MAXIMUM RATINGS

 (T_A=25°C Unless Otherwise Noted)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±12	V
Continuous Drain Current	T _A =25°C	I _D	-3.1	A
	T _A =70°C		-2.3	
Pulsed Drain Current		I _{DM}	-10	A
Power Dissipation	T _A =25°C	P _D	1.15	W
	T _A =70°C		0.73	
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55 to 150	°C
Lead Temperature(^{1/16"} from case for 10sec.)		T _L	275	

◆ THERMAL RESISTANCE RATINGS

Thermal Resistance		Symbol	Maximum	Unit
Junction-to-Ambient	T ≤ 5sec	R _{θJA}	110	°C/W
Junction-to-Ambient	Steady State	R _{θJA}	150	°C/W
Junction-to-Lead	Steady State	R _{θJL}	80	°C/W

Note :

1. Pulse width limited by maximum junction temperature.
2. Duty cycle ≤ 1%

Dual P-Channel Enhancement Mode Field Effect Transistor
◆ ELECTRICAL CHARACTERISTICS

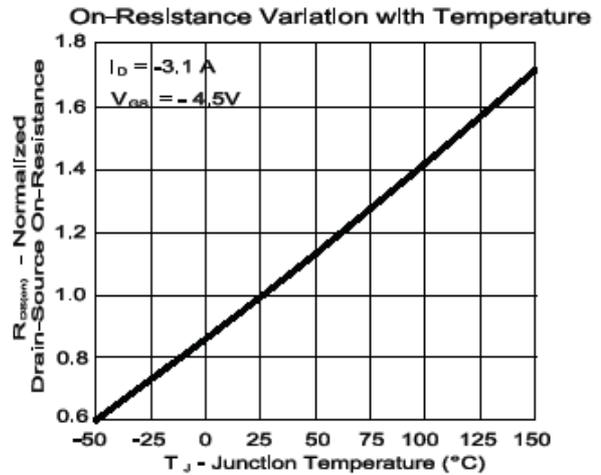
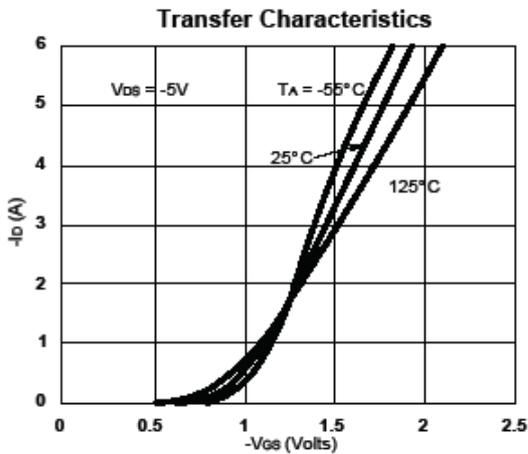
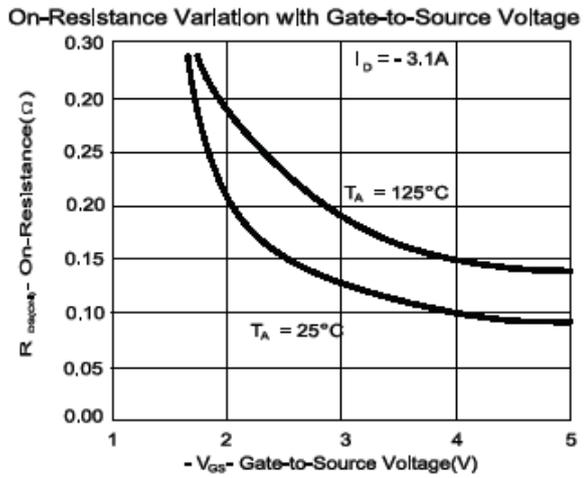
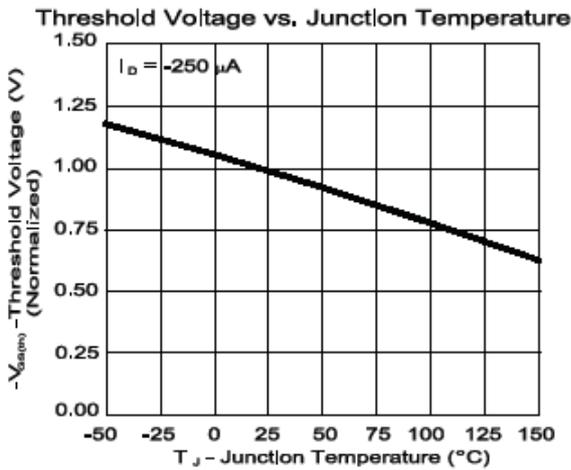
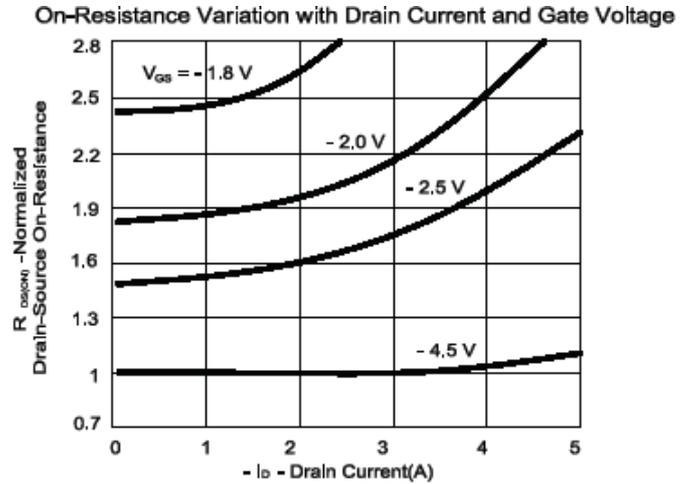
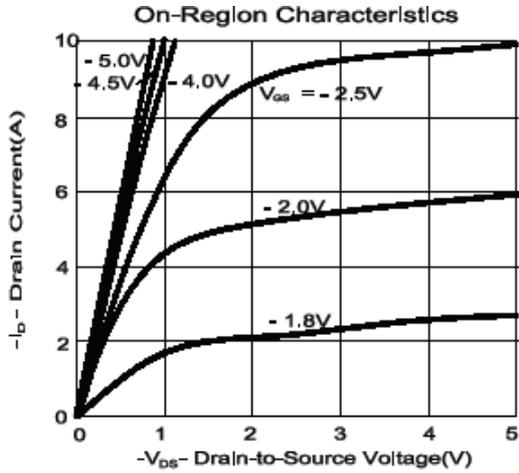
 (T_A=25°C Unless Otherwise Noted)

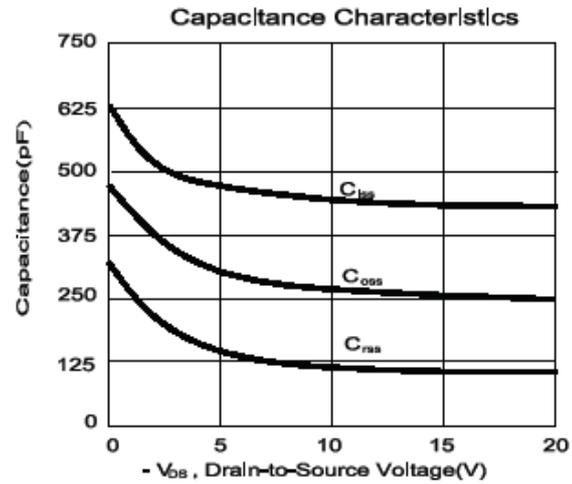
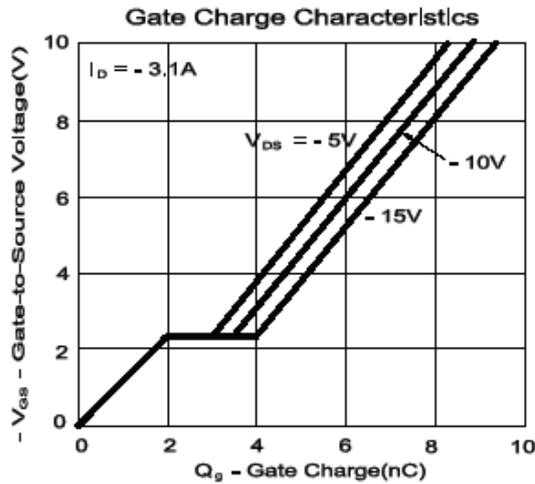
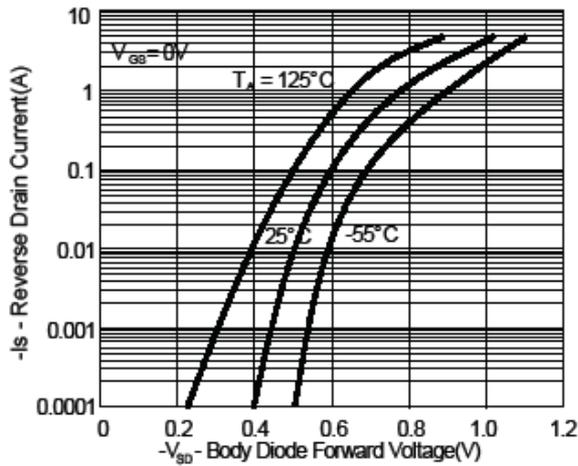
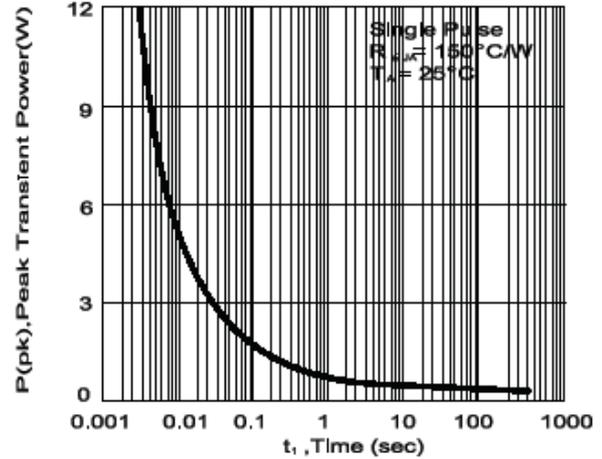
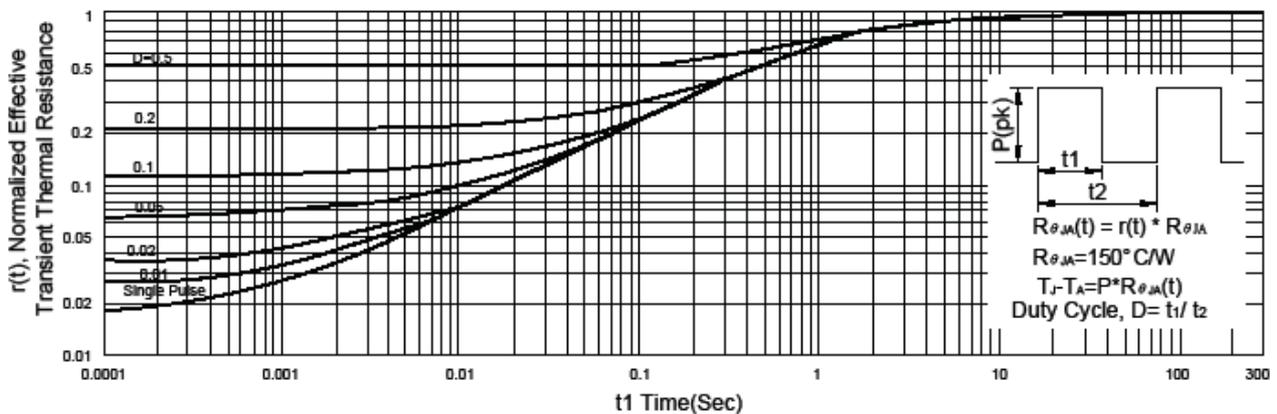
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250 μA	-20	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.4	-0.8	-1.2	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V	-	-	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V	-	-	-1	uA
		V _{DS} = -16V, V _{GS} = 0V, T _J = 55 °C	-	-	-10	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = -5V, V _{GS} = -10V	-10	-	-	A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -1.8V, I _D = -1A	-	214	300	mΩ
		V _{GS} = -2.5V, I _D = -2A	-	125	180	
		V _{GS} = -4.5V, I _D = -3.1A	-	98	115	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -3.1A	-	6	-	S
Dynamic						
Total Gate Charge ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = -4.5V, I _D = -3.1A	-	5.6	8.4	nC
Gate-Source Charge ²	Q _{gs}		-	2.3	-	
Gate-Drain Charge ²	Q _{gd}		-	1.5	-	
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = -10V, I _D ≅ -1A, V _{GS} = -4.5V, R _{GEN} = 6 Ω	-	11	-	nS
Rise Time ²	t _r		-	32	-	
Turn-Off Delay Time ²	t _{d(off)}		-	38	-	
Fall-Time ²	t _f		-	32	-	
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz	-	476	-	pF
Output Capacitance	C _{oss}		-	260	-	
Reverse Transfer Capacitance	C _{rss}		-	105	-	
Source-Drain Diode Ratings and Characteristics (T_c=25°C)						
Forward Voltage ¹	V _{SD}	I _F = -0.8A, V _{GS} = 0V	-	-	-1.2	V
Reverse Recovery Time	trr	I _F = -0.8A, dI _F /dt = 100A / μS	-	40	80	nS

1. Pulse test : Pulse Width ≤ 300 μ sec, Duty Cycle ≤ 2%.

2. Independent of operating temperature.

3. Pulse width limited by maximum junction temperature.

◆ TYPICAL CHARACTERISTICS


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Body Diode Forward Voltage Variation with Source Current and Temperature

Single Pulse Maximum Power Dissipation

Transient Thermal Response Curve.


◆ PHYSICAL DIMENSIONS
TSOP-6

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A		0.95		H	0.08	0.13	0.2
B	2.5	2.8	3.1	I	0.3		0.6
C	1.5	1.6	1.7	J			
D	2.7	2.9	3.1	K			
E	0.7		1.2	L			
F	0		0.15	M			
G	0.3	0.4	0.5	N			

