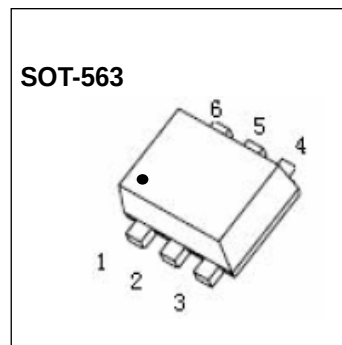


Plastic-Encapsulate MOSFETS

Dual P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	520mΩ@-4.5V	-0.66A
	700mΩ@-2.5V	
	950mΩ(TYP)@-1.8V	



GENERAL DESCRIPTION

This Dual P-Channel MOSFET has been designed using advanced Power Trench process to optimize the $R_{DS(ON)}$.

Including two P-ch BC3139K MOSFET (independently) in a package.

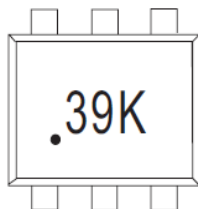
FEATURE

- High-Side Switching
- Low On-Resistance
- Low Threshold
- Fast Switching Speed

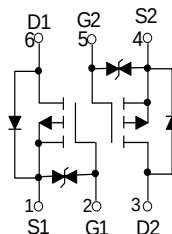
APPLICATION

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

MARKING



Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DSS}	-20	V
Typical Gate-Source Voltage	V_{GS}	±12	
Drain Current-Continuous	$I_{D(DC)}$	-0.66	A
Drain Current -Pulsed(note1)	$I_{DM(pulse)}$	-2.64	
Power Dissipation (note 2)	P_D	150	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Storage Temperature	T_j	150	$^\circ\text{C}$
Junction Temperature	T_{stg}	-55 ~+150	

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25°C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On/Off States						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Gate-Threshold Voltage(note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35		-1.1	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±20	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-Source On-State Resistance(note 3)	R _{DS(on)}	V _{GS} =-4.5V, I _D =-1A		450	520	mΩ
		V _{GS} =-2.5V, I _D =-800mA		575	700	
		V _{GS} =-1.8V, I _D =-500mA		950		
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-540mA	0.8			S
Dynamic Characteristics(note 4)						
Input Capacitance	C _{iss}	V _{DS} =-16V,V _{GS} =0V,f =1MHz			170	pF
Output Capacitance	C _{oss}				25	
Reverse Transfer Capacitance	C _{rss}				15	
Switching Times (note 4)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-10V, I _D =-200mA, V _{GS} =-4.5V,R _G =10Ω		9		ns
Rise Time	t _r			5.8		
Turn-Off Delay Time	t _{d(off)}			32.7		
Fall Time	t _f			20.3		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage (note 3)	V _{SD}	I _S =-0.5A, V _{GS} = 0V			-1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at T_a=25°C.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.
4. These parameters have no way to verify.

Typical Characteristics

