

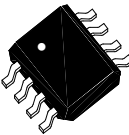


P-Channel Enhancement-Mode MOSFET (-30V, -12A)

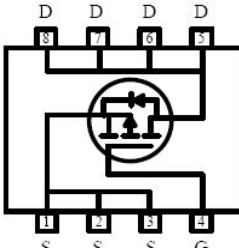
PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(on)} (m-ohm) Max
-30V	-12A	13 @ V _{GS} = -20V ,I _D =-10A
		20 @ V _{GS} = -10V ,I _D =-10A
		28 @ V _{GS} = -5V ,I _D =-10A

Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Lead free product is acquired



SOP-8



Pin 1 / 2 / 3: Source
Pin 4: Gate
Pin 5 / 6 / 7 / 8: Drain

Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V _{DS}	Drain-Source Voltage	-30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current @ T _A =25°C	-10	A
I _{DM}	Drain Current (Pulsed) ^a	-60	A
I _{AR}	Avalanche Current	30	A
E _{AR}	Repetitive Avalanche Energy L=0.3mH	135	mJ
P _D	Total Power Dissipation @ T _A =25°C	3	W
	Total Power Dissipation @ T _A =75°C	2.1	
I _S	Maximum Diode Forward Current	-2.1	A
T _j , T _{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	50	°C/W

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.
b: 1-in² 2oz Cu PCB board



Electrical Characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 100	nA
• On Characteristics^c						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-	-3.0	V
$I_{DS(on)}$	On State Drain Current	$V_{DS}=-5V, V_{GS}=-10V$	60	-	-	A
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-10A$	-	-	14	m Ω
		$V_{GS}=-4.5V, I_D=-6A$	-	-	20	
g_{FS}	Forward Transconductance	$V_{DS}=-10V, I_D=-5A$	-	26	-	S
• Dynamic Characteristics^d						
C_{iss}	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	-	2076	2500	μF
C_{oss}	Output Capacitance		-	503	-	
C_{riss}	Reverse Transfer Capacitance		-	302	423	
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	1	2	3	Ω
• Switching Characteristics^d						
Q_g	Total Gate Charge	$V_{DS}=-15V, I_D=-12A, V_{GS}=-10V$	-	37.2	-	nC
Q_{gs}	Gate-Source Charge		-	7	-	
Q_{gd}	Gate-Drain Charge		-	10.4	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-15V, R_L=1.25\Omega, V_{GS}=-10V, R_G=3\Omega$	-	12.4	-	nS
t_r	Turn-on Rise Time		-	8.2	-	
$t_{d(off)}$	Turn-off Delay Time		-	25.6	-	
t_f	Turn-off Fall Time		-	12	-	
t_{rr}	Reverse Recovery Time	$I_{DS}=-12A, di/dt=100A/\mu S$	-	33	40	nS
Q_{rr}	Reverse Recovery Charge		-	23	-	nC
• Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=-1A$	-	-	-1	V
I_S	Drain-Source Diode Forward Current		-	-	-4.2	A

Note: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Characteristics Curve

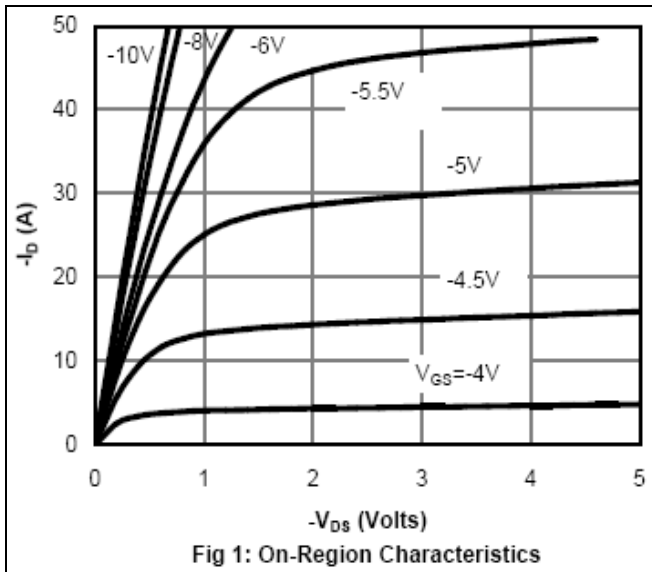


Fig 1: On-Region Characteristics

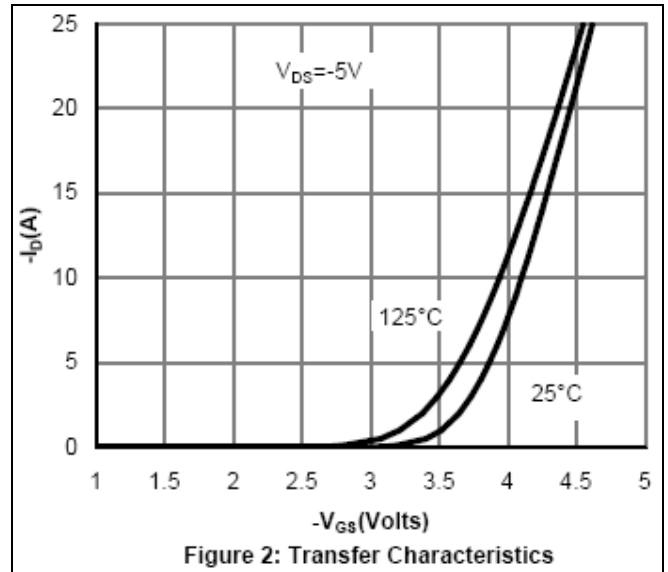


Figure 2: Transfer Characteristics

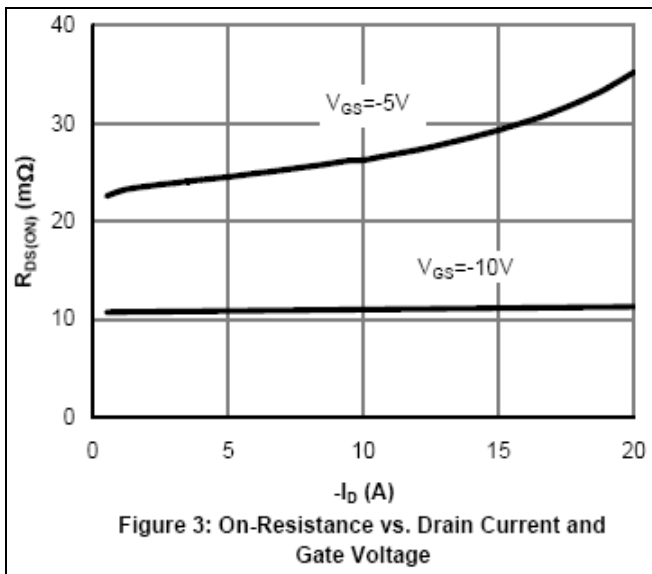


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

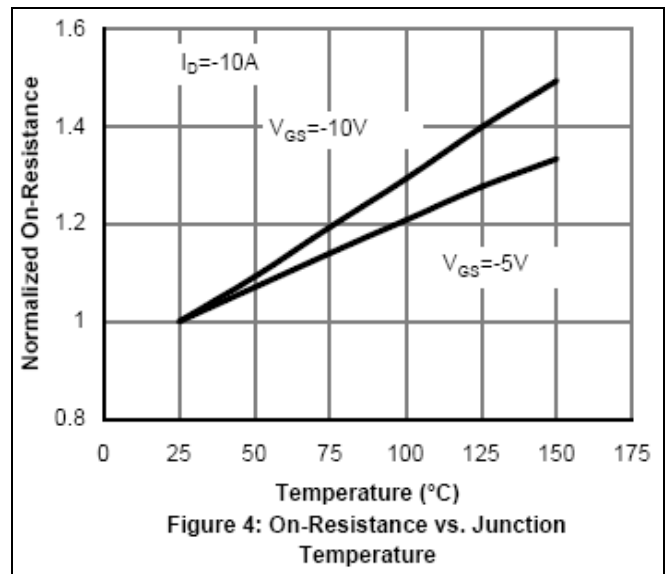


Figure 4: On-Resistance vs. Junction Temperature

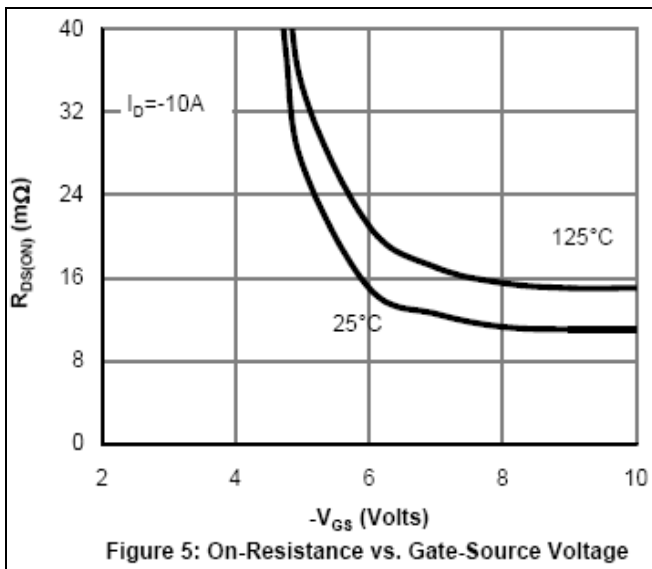


Figure 5: On-Resistance vs. Gate-Source Voltage

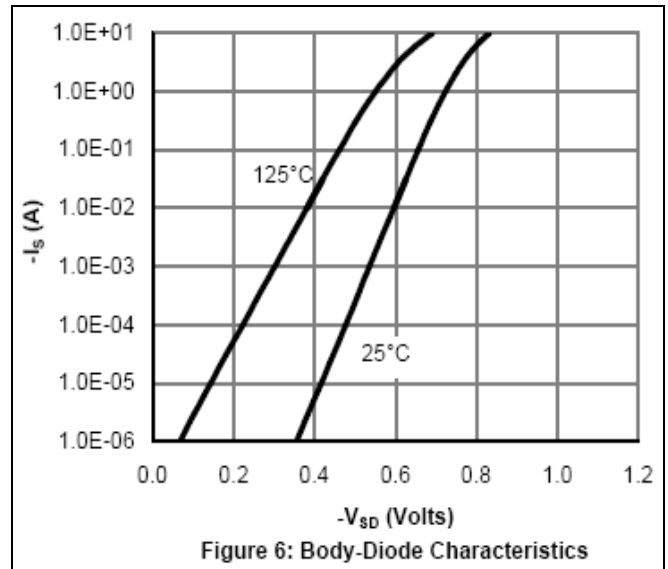


Figure 6: Body-Diode Characteristics



Characteristics Curve

