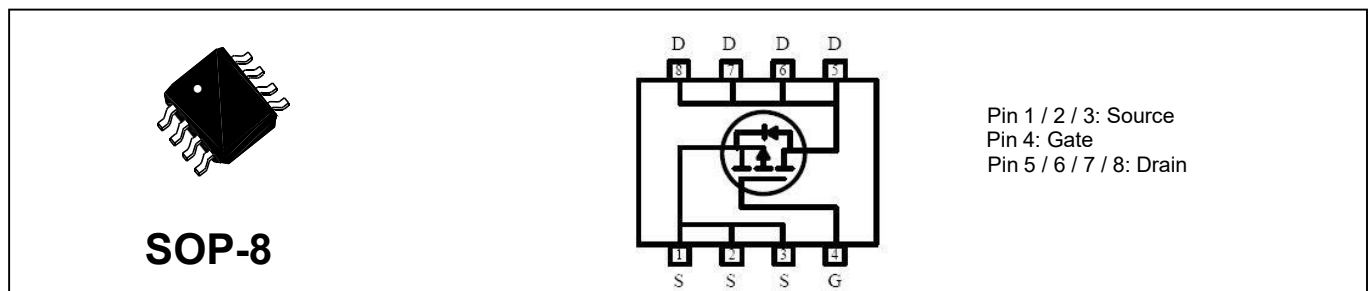


**P-Channel Enhancement-Mode MOSFET (-30V, -12A)**

PRODUCT SUMMARY		
V <sub>DSS</sub>	I <sub>D</sub>	R <sub>DS(on)</sub> (m-ohm) Max
-30V	-12A	12 @ V <sub>GS</sub> = -10V ,I <sub>D</sub> =-12A
		15 @ V <sub>GS</sub> = -4.5V ,I <sub>D</sub> =-10A

**Features**

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



**Absolute Maximum Ratings** (T<sub>A</sub>=25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V <sub>DS</sub>	Drain-Source Voltage	-30	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Drain Current @T <sub>A</sub> =25°C	-12	A
I <sub>DM</sub>	Drain Current (Pulsed) <sup>a</sup>	-60	A
I <sub>AR</sub>	Avalanche Current	30	A
E <sub>AR</sub>	Repetitive Avalanche Energy L=0.3mH	135	mJ
P <sub>D</sub>	Total Power Dissipation @T <sub>A</sub> =25°C	3	W
	Total Power Dissipation @T <sub>A</sub> =75°C	2.1	
I <sub>S</sub>	Maximum Diode Forward Current	-2.1	A
T <sub>j</sub> , T <sub>stg</sub>	Operating Junction and Storage Temperature Range	-55 to +150	°C
R <sub>θJA</sub>	Thermal Resistance Junction to Ambient (PCB mounted) <sup>b</sup>	50	°C/W

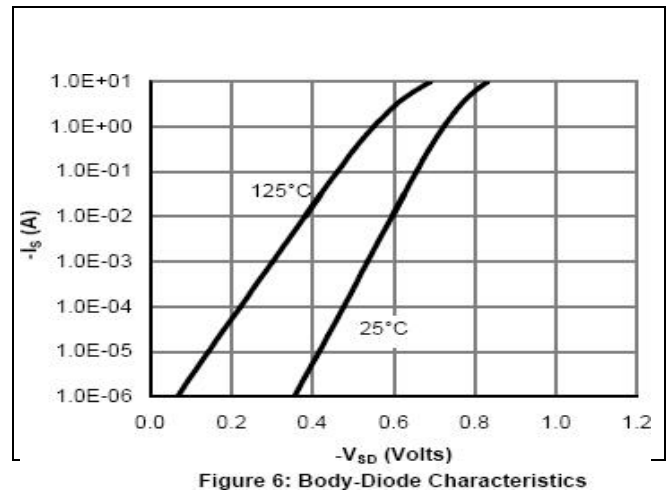
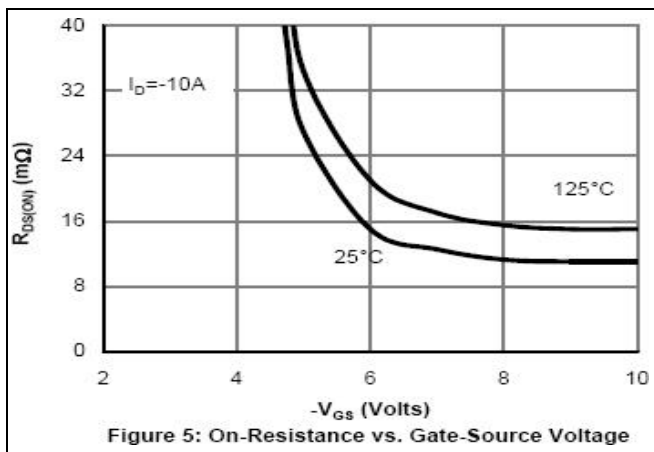
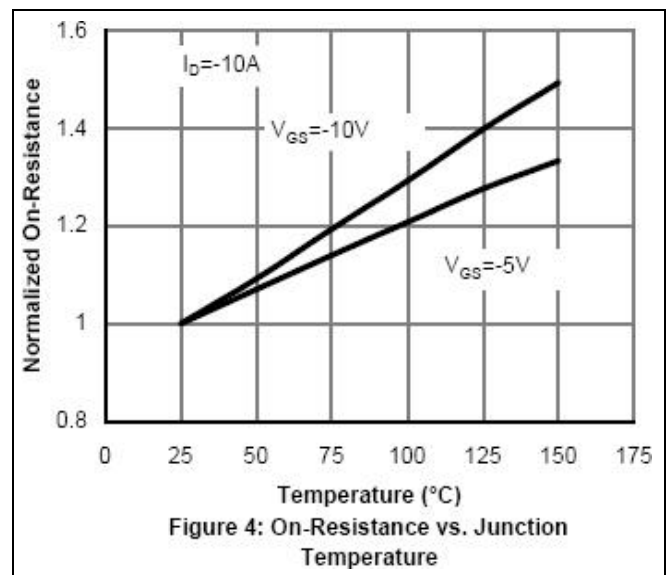
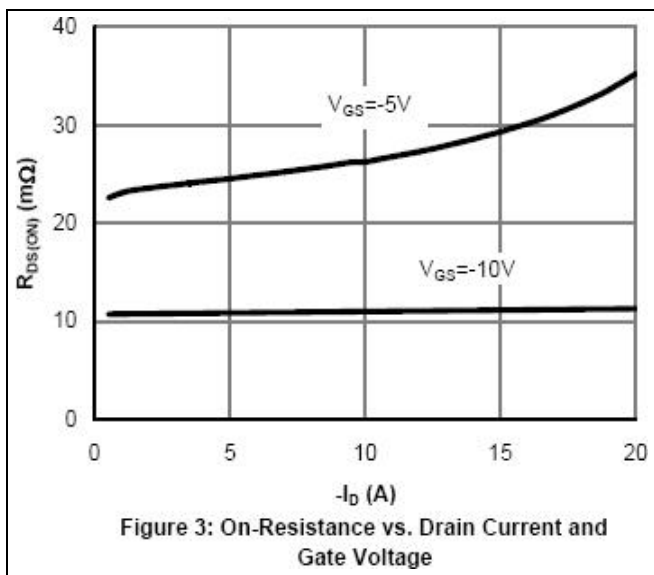
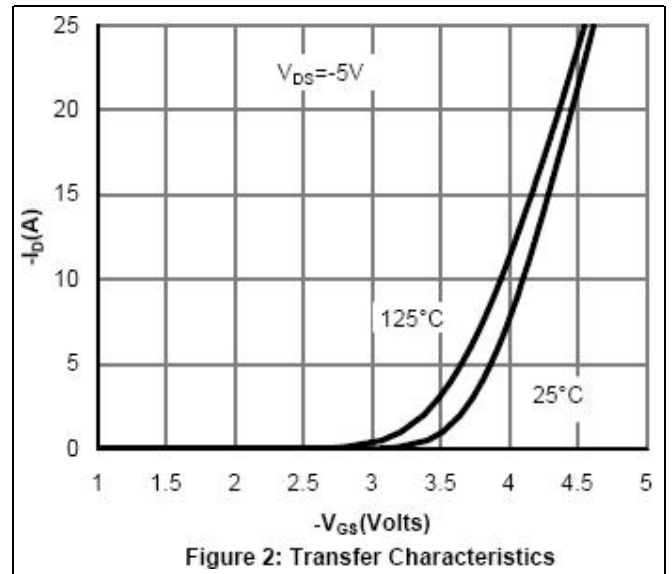
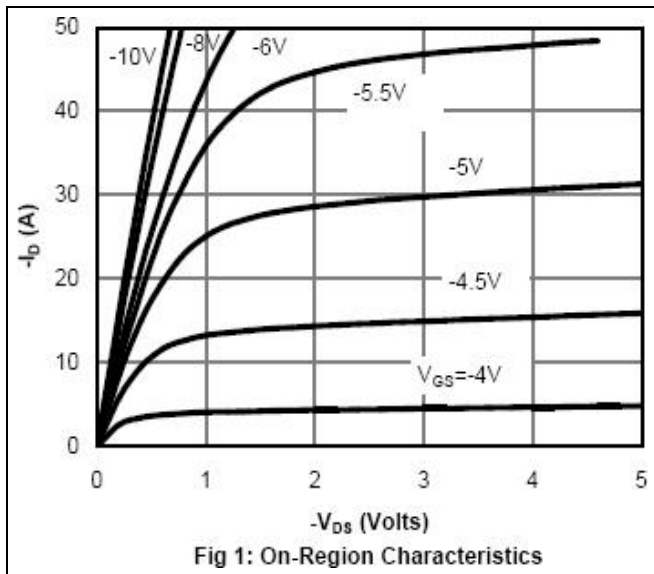
a: Repetitive Rating: Pulse width limited by the maximum junction temperature.  
 b: 1-in<sup>2</sup> 2oz Cu PCB board

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

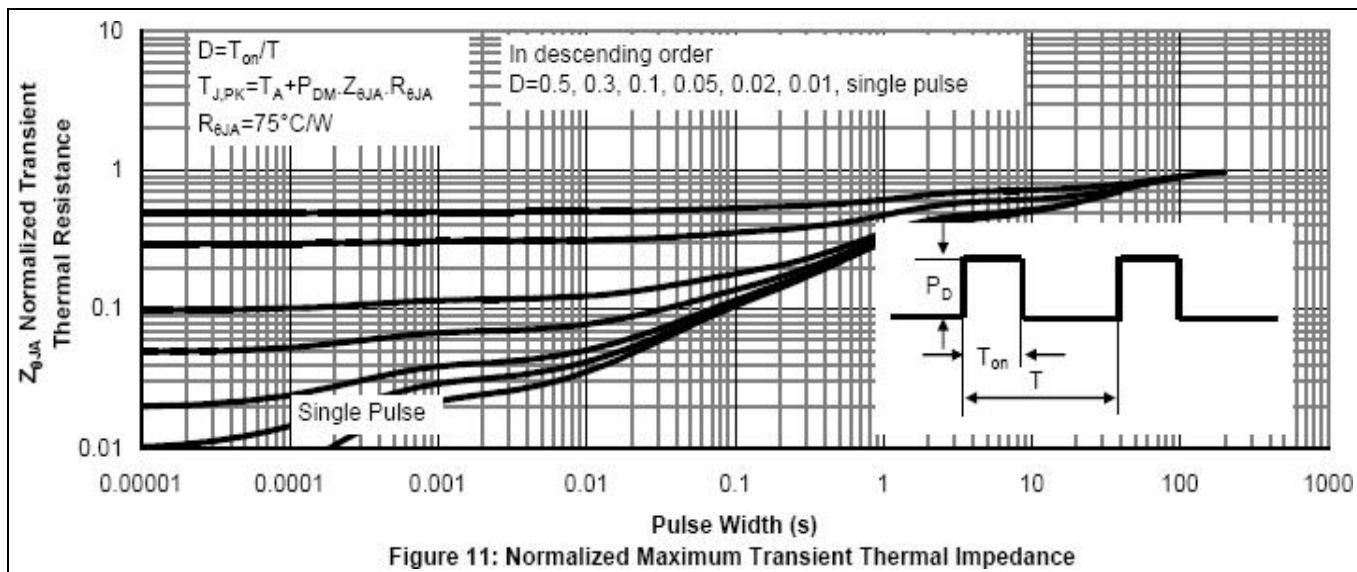
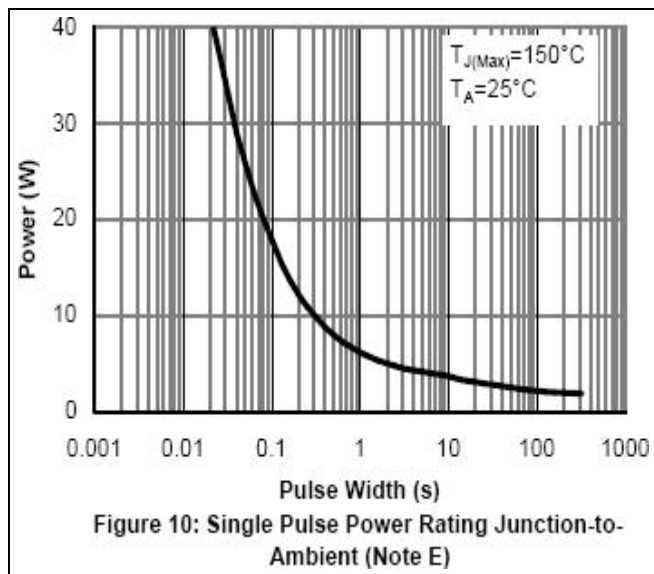
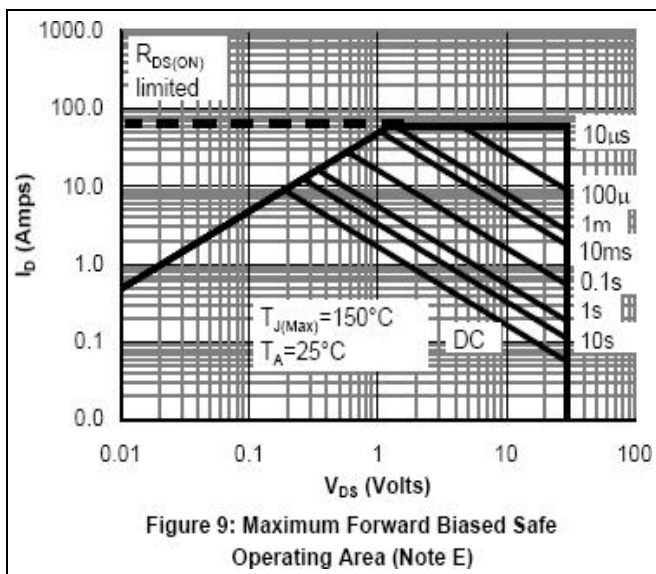
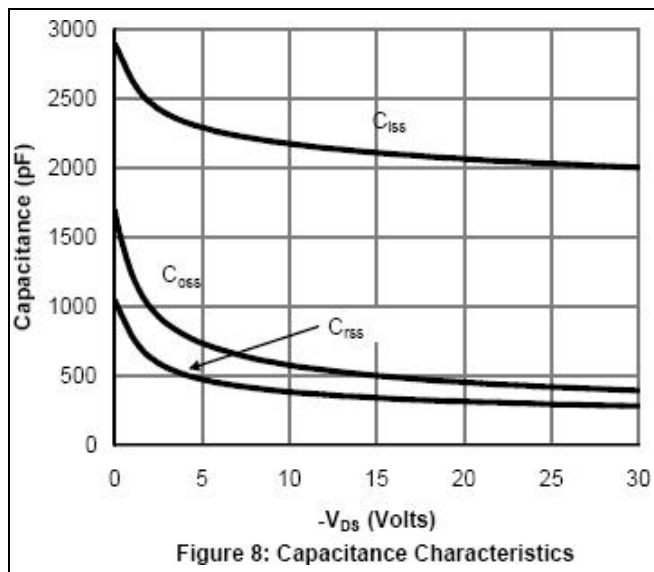
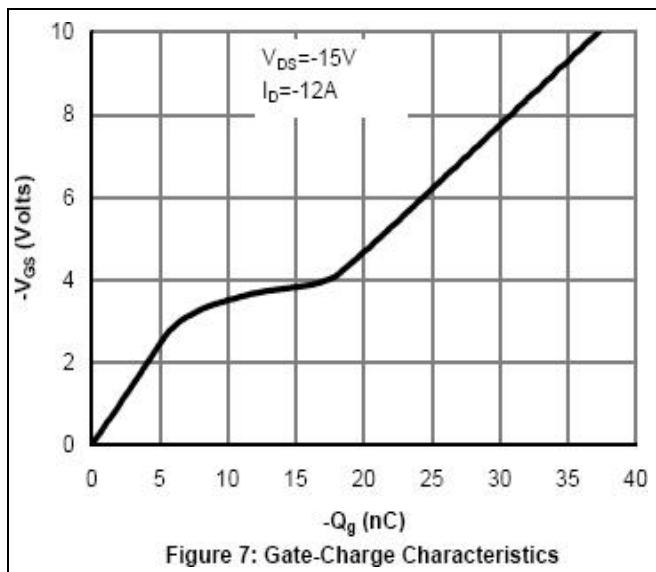
Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
<b>• Off Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>• On Characteristics<sup>c</sup></b>						
$V_{GS(th)}$	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	$V_{GS}=-10V, I_D=-12A$	-	-	12	m $\Omega$
		$V_{GS}=-4.5V, I_D=-10A$	-	-	10	
$g_{FS}$	Forward Transconductance	$V_{DS}=-10V, I_D=-5A$	-	26	-	S
<b>• Dynamic Characteristics<sup>d</sup></b>						
$C_{iss}$	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	-	2076	2500	pF
$C_{oss}$	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	$\Omega$
<b>• Switching Characteristics<sup>d</sup></b>						
$Q_g$	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
<b>• Drain-Source Diode Characteristics</b>						
$V_{SD}$	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



Characteristics Curve



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