

P-Channel Enhancement Mode MOSFET

General Description

Advanced Power MOSFETs from Cmos provide the designer with the best combination of fast switching and low on-resistance. This device is well suited for Power Management and load switching applications common in Notebook Computers and Portable Battery Packs.

Features

- P-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant

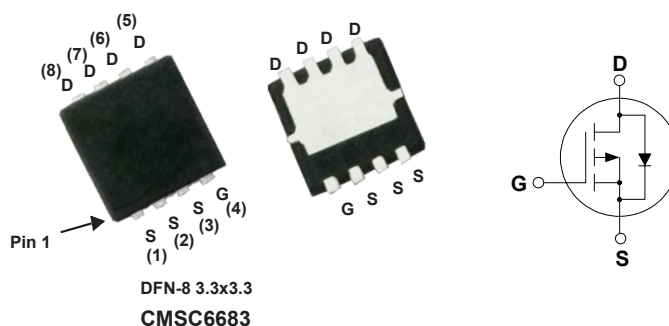
Product Summary

BVDSS	RDSON	ID
-20V	10mΩ	-54A

Applications

- High side in DC - DC Buck Converters
- Notebook battery power management
- Load switch in Notebook

DFN-8 3.3x3.3 Pin Configuration

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	-54	A
I_{DM}	Pulsed Drain Current	-162	A
EAS	Single Pulse Avalanche Energy ¹	81	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	40	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	---	53	$^\circ\text{C/W}$

P-Channel Enhancement Mode MOSFET

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-10A$	---	8.5	10	$m\Omega$
		$V_{GS}=-2.5V$, $I_D=-5A$	---	---	15	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-0.5	---	-1	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	20	---	S
Q_g	Total Gate Charge	$V_{DS}=-10V$, $V_{GS}=-4.5V$, $I_D=-12A$	---	80	---	nC
Q_{gs}	Gate-Source Charge		---	6.3	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time ³	$V_{DS}=-10V$, $V_{GS}=-4.5V$, $R_{GEN}=6\Omega$ $R_D=-12A$	---	15	---	ns
T_r	Rise Time		---	35	---	
$T_{d(off)}$	Turn-Off Delay Time		---	315	---	
T_f	Fall Time		---	160	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $f=1MHz$	---	5500	---	pF
C_{oss}	Output Capacitance		---	800	---	
C_{rss}	Reverse Transfer Capacitance		---	730	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V$, $I_{SD}=-2.3A$	---	---	-1.2	V

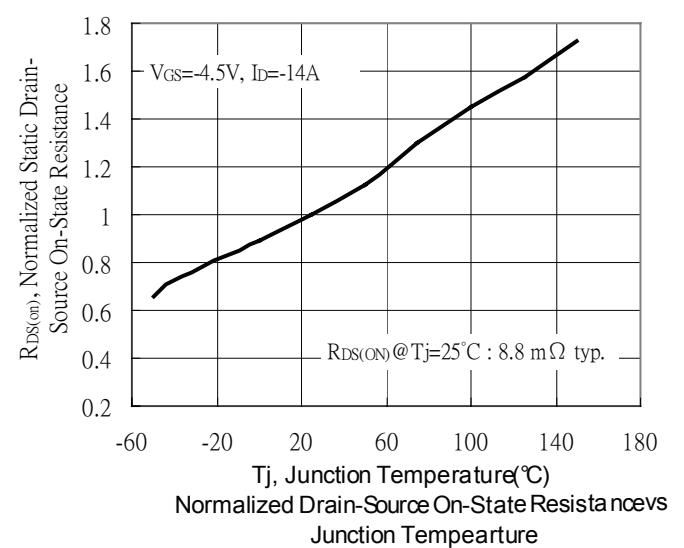
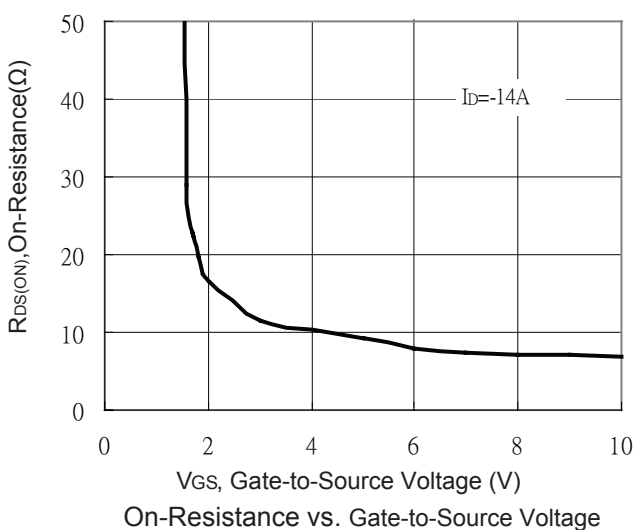
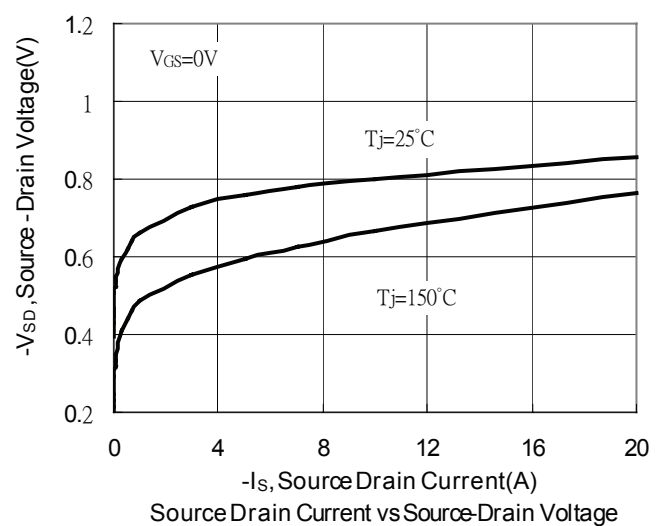
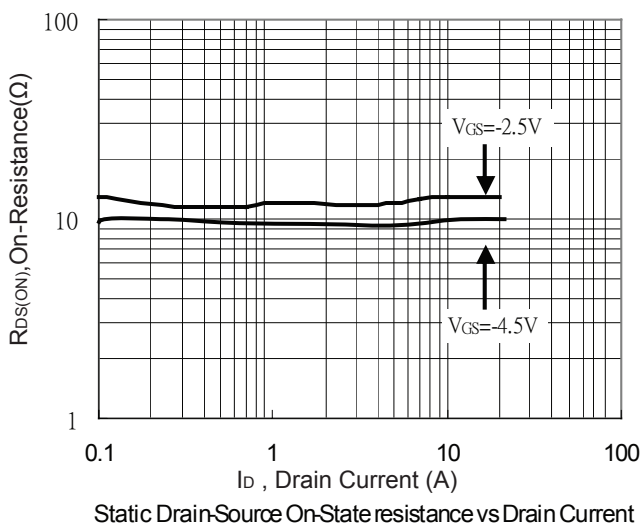
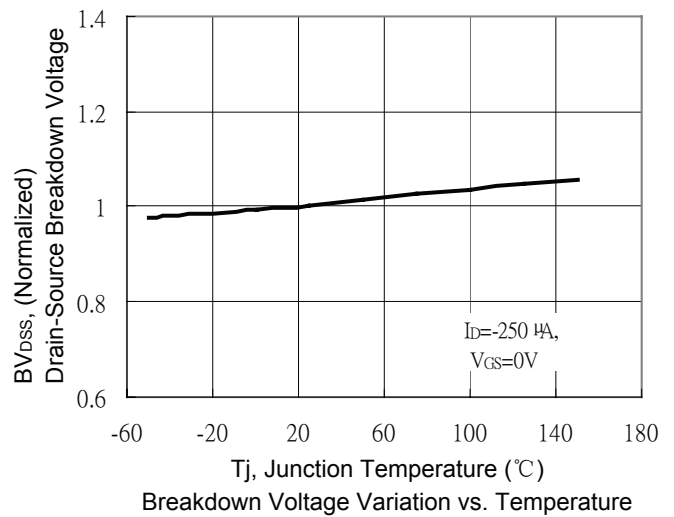
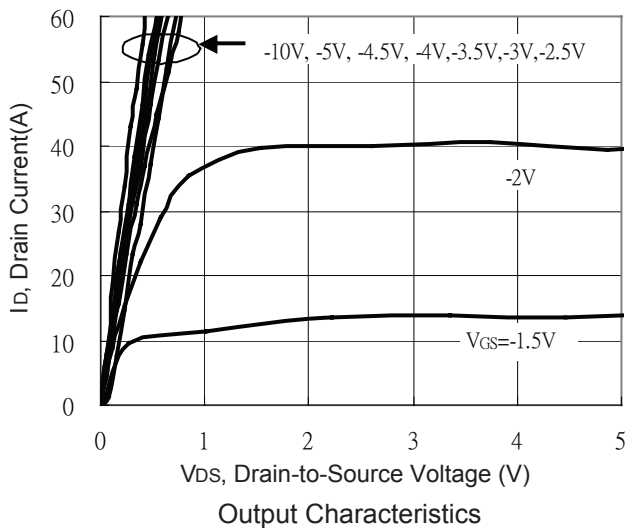
Notes:

1. The test condition is $V_{DS}=15V$, $V_{GS}=10V$, $L=0.5mH$, $I_D=18A$.

This product has been designed and qualified for the consumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserves the right to improve product design ,functions and reliability without notice.

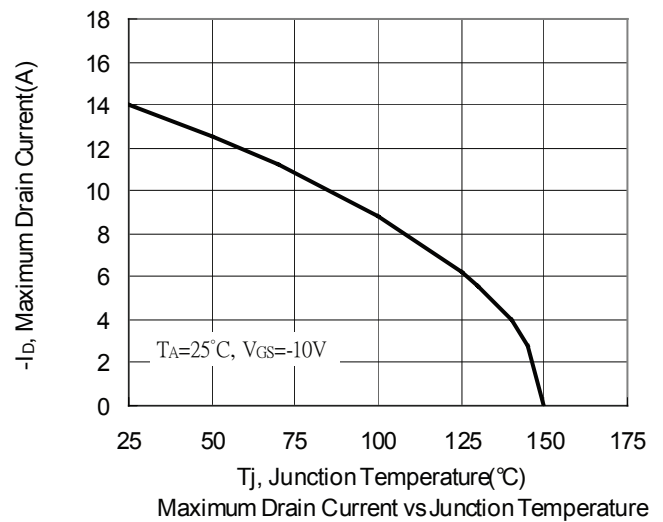
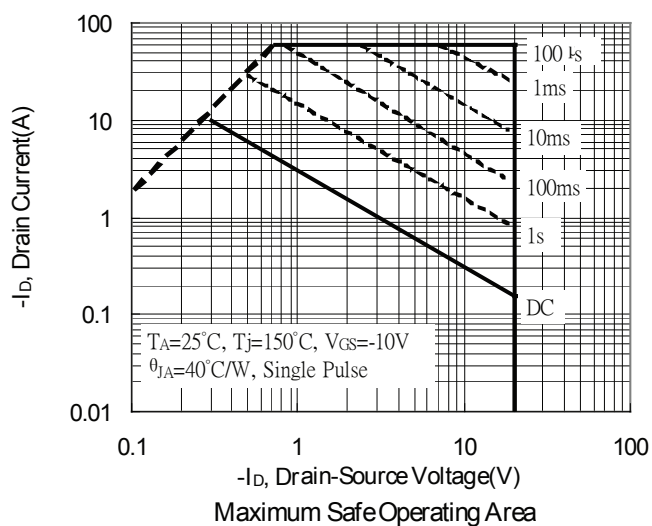
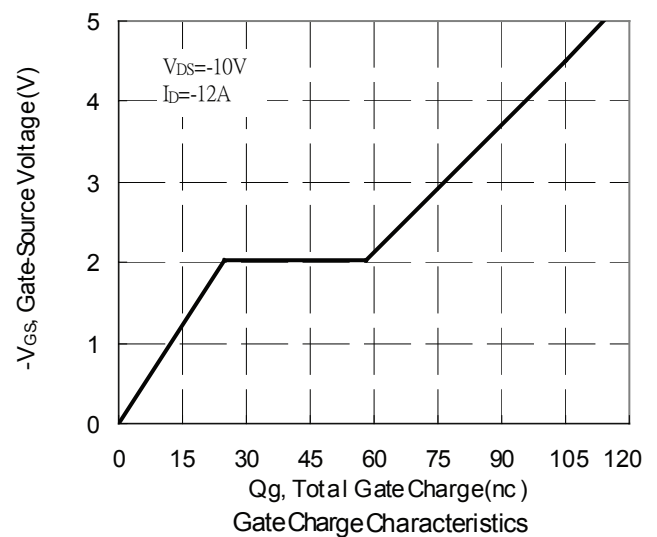
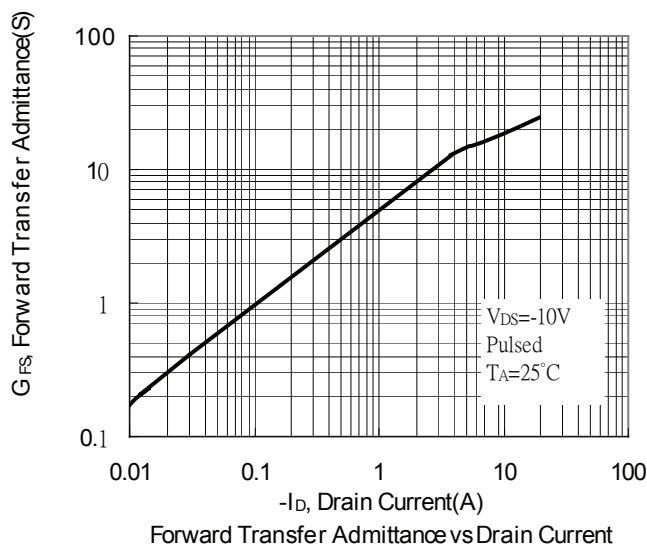
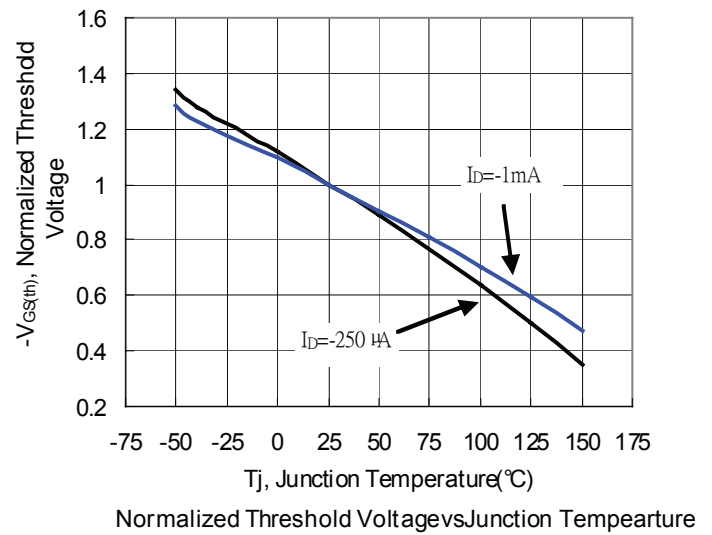
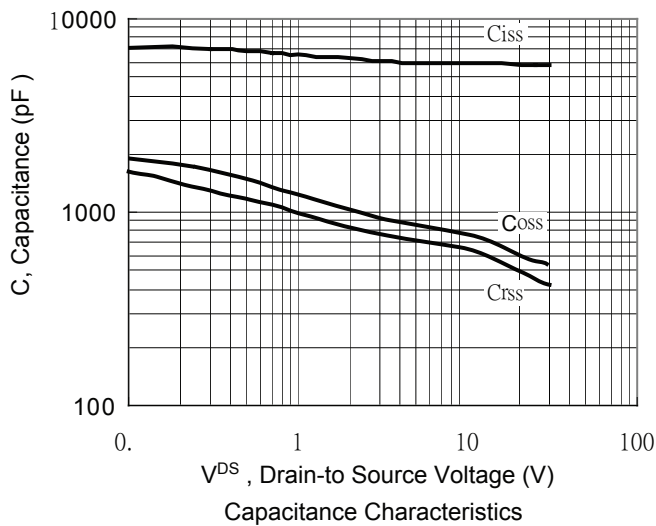
Typical Characteristics

P-Channel Enhancement Mode MOSFET



Typical Characteristics

P-Channel Enhancement Mode MOSFET



Typical Characteristics

