

General Description

The CMSC60P03 combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDS(ON).

This device is ideal for load switch and battery protection applications.

Features

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

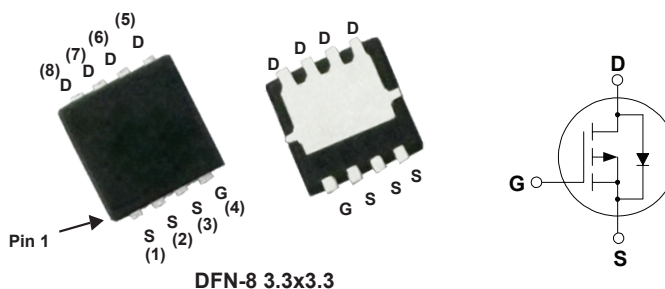
Product Summary

BVDSS	RDSON	ID
-30V	8mΩ	-50A

Applications

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

DFN-8 3.3x3.3 Pin Configuration



Type	Package	Marking
CMSC60P03	DFN-8 3.3*3.3	60P03

Absolute Maximum Ratings (TA=25 °C Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-50	A
I _D @T _C =100°C	Continuous Drain Current	-40	A
I _{DM}	Pulsed Drain Current	-200	A
EAS	Single Pulse Avalanche Energy ¹	180	mJ
P _D @T _C =25°C	Total Power Dissipation	40	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance, Junction-to-Ambient	---	65	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-30	---	---	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-28A$	---	---	8	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-25A$	---	---	13	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-1	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-24V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	5	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-15V$, $I_D=-15A$ $V_{GS}=-4.5V$	---	31	---	nC
Q_{gs}	Gate-Source Charge		---	11	---	
Q_{gd}	Gate-Drain Charge		---	10	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-15V$, $V_{GEN}=-10V$, $I_D=-15A$ $R_G=3.3\Omega$	---	9	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	116	---	
T_f	Fall Time		---	23	---	
C_{iss}	Input Capacitance	$V_{DS}=-15V$, $V_{GS}=0V$, $f=1MHz$	---	2800	---	pF
C_{oss}	Output Capacitance		---	330	---	
C_{rss}	Reverse Transfer Capacitance		---	300	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_{SD}=-28A$	---	---	-1.2	V

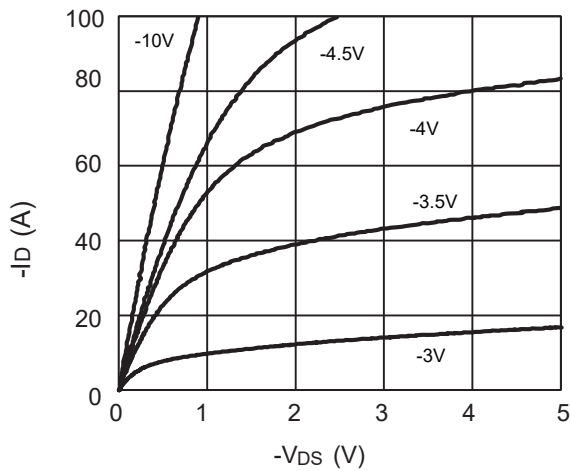
Notes:

1. The test condition is $V_{DS}=-20V$, $V_{GS}=-10V$, $L=0.5mH$, $I_D=27A$.

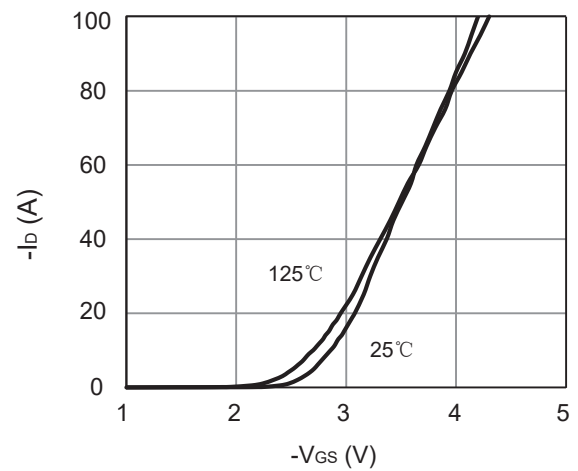
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 Cmos reserves the right to improve product design ,functions and reliability without notice.

P-Channel Enhancement Mode MOSFET

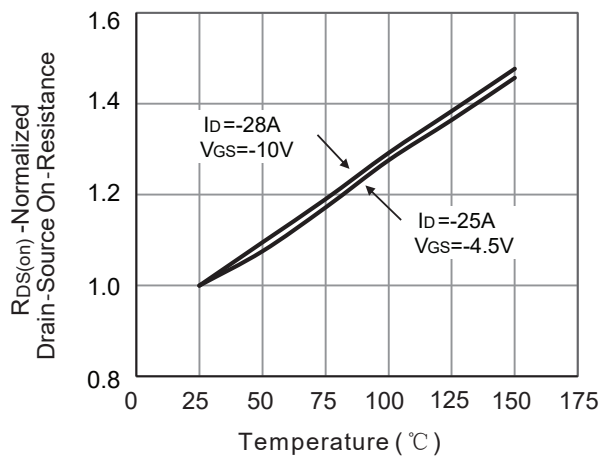
Typical Characteristics



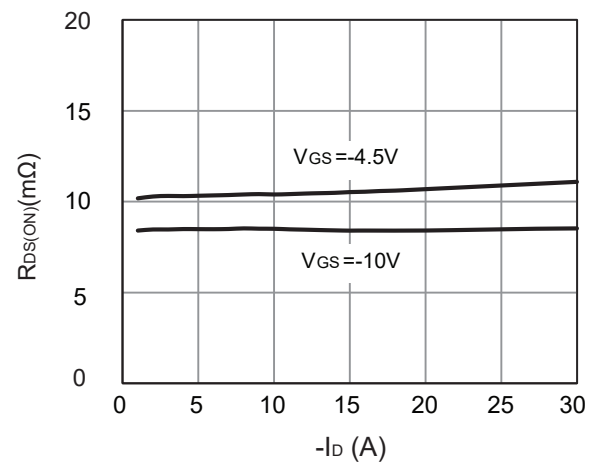
On-Region Characteristics



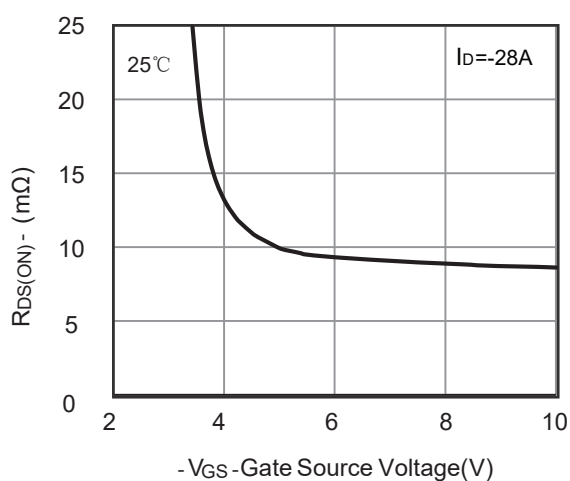
transfer characteristics



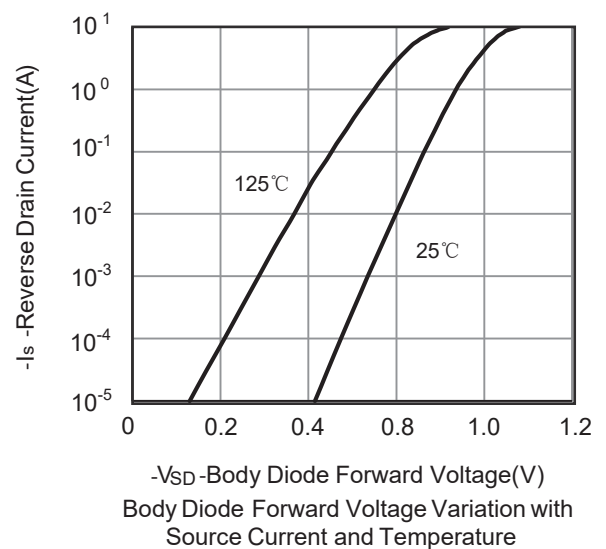
On-Resistance vs. Junction Temperature



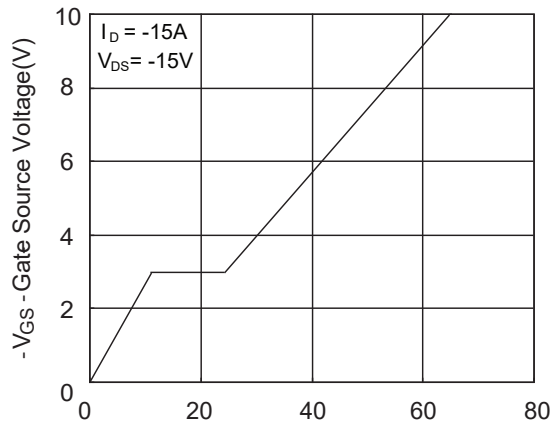
On-Resistance vs. Drain Current



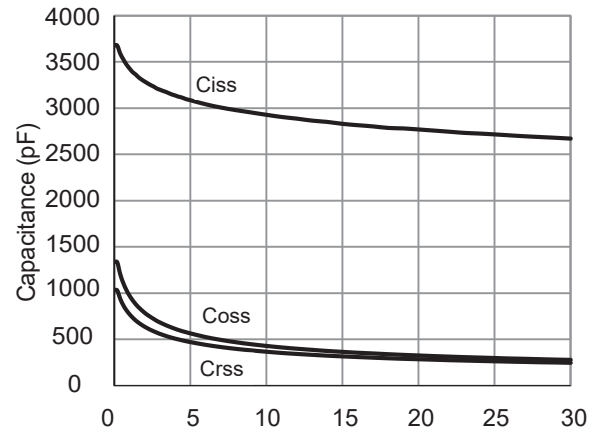
On-Resistance Variation with Gate-Source Voltage



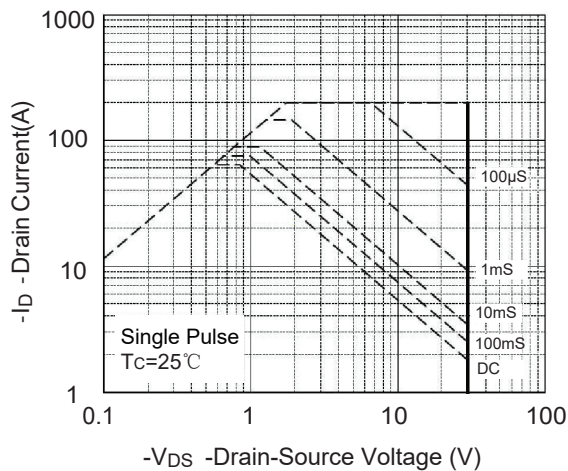
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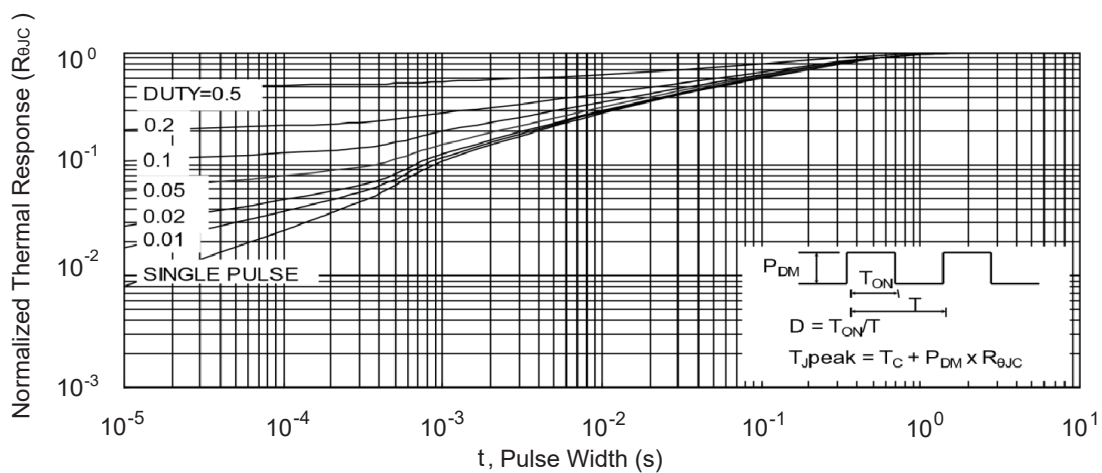
Gate Charge Characteristics



Capacitance Characteristics



Safe Operating Area



Normalized Maximum Transient Thermal Impedance