CMSA6284

80V, 5.7mΩ typ., 78A N-Channel MOSFET

General Description

The CMSA6284 uses advanced SGT technology to provide excellent $R_{DS(ON)}$. This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
80V	6.5mΩ	78A

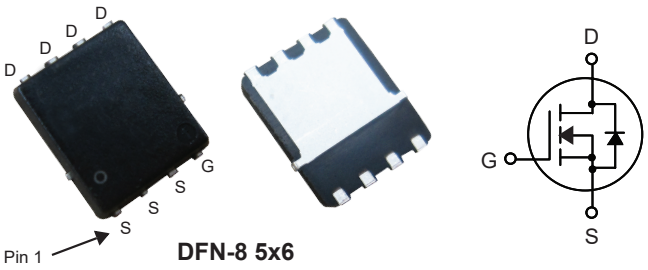
Applications

- Synchronous Rectification
- High Frequency DC/DC Converters

Features

- Low ON-resistance
- Low Gate Charge
- Small Footprint (5x6 mm) for Compact Design
- RoHS Compliant

DFN-8 5x6 Pin Configuration



DFN-8 5x6

Type	Package	Marking
CMSA6284	DFN-8 5x6	CMSA6284

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	80	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	78	A
I_D@T_C=100℃	Continuous Drain Current	49	A
I_{DM}	Pulsed Drain Current	234	A
EAS	Single Pulse Avalanche Energy[1]	98	mJ
P_D@T_C=25℃	Total Power Dissipation	80	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(Steady-State)	---	60	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case (Steady-State)	---	1.56	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=20A	---	5.7	6.5	mΩ
		V_{GS}=4.5V , I_D=15A	---	8.2	9.3	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V , V_{GS} =0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=20A	---	26	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	0.9	---	Ω
Q_g	Total Gate Charge	I_D=18 A V_{DS}=40V V_{GS}=10 V	---	34	---	nC
Q_{gs}	Gate-Source Charge		---	7.5	---	
Q_{gd}	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=40V V_{GS}=10 V R_{GEN}=3Ω R_L=2.25Ω	---	7	---	ns
T_r	Rise Time		---	4	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	5	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1900	---	pF
C_{oss}	Output Capacitance		---	960	---	
C_{rss}	Reverse Transfer Capacitance		---	80	---	

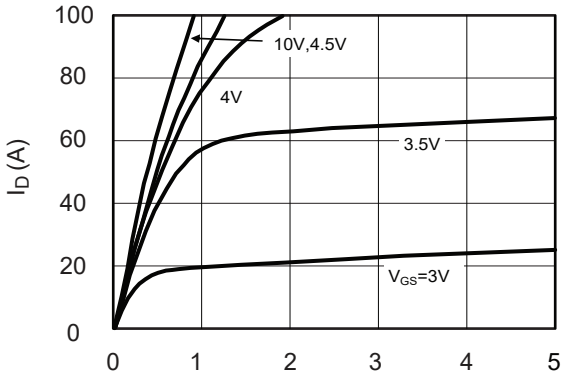
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	78	A
I_{SM}	Pulsed Source Current		---	---	234	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=28A ,T_J=25℃	---	0.87	1.2	V

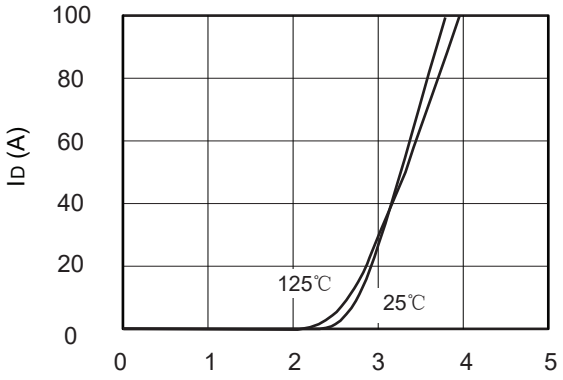
Note :

1.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=1mH , I_{AS}=14A.

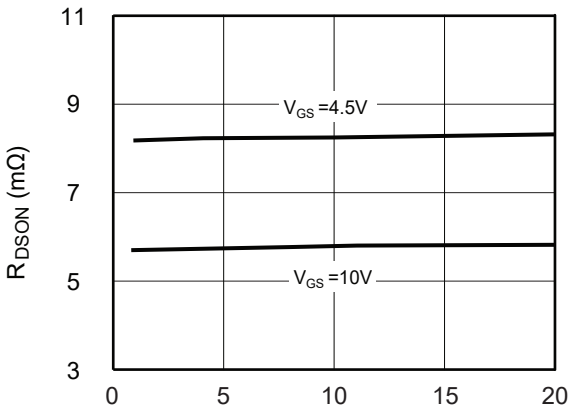
Typical Characteristics



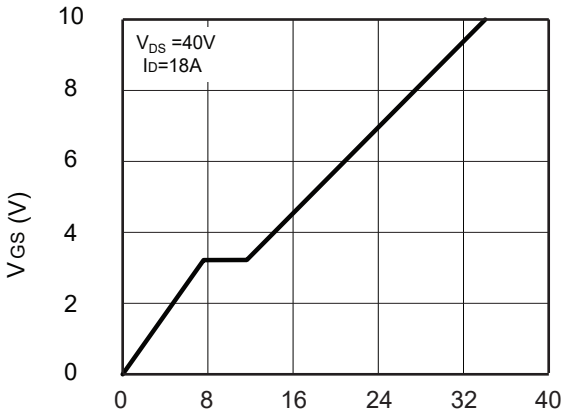
Output Characteristics



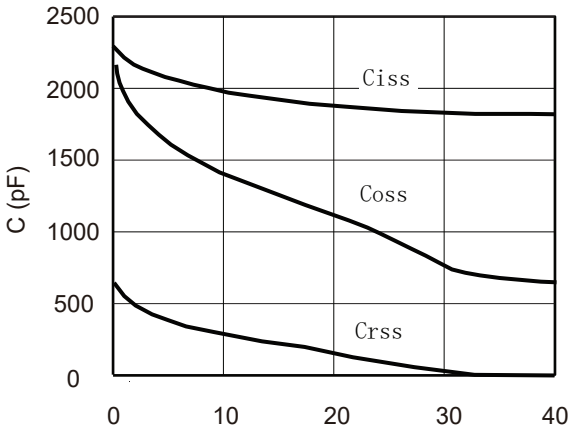
transfer characteristics



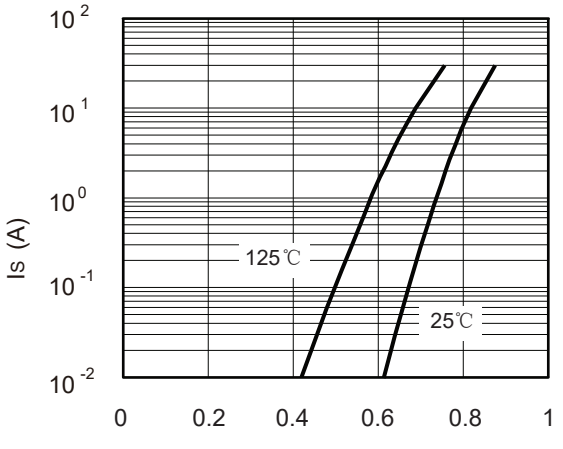
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics