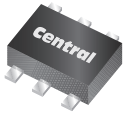
CMLDM7585

SURFACE MOUNT SILICON N-CHANNEL AND P-CHANNEL ENHANCEMENT-MODE COMPLEMENTARY MOSFETS



SOT-563 CASE

Central Semiconductor Corp.
www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLDM7585 consists of complementary N-Channel and P-Channel enhancement-mode silicon MOSFETs designed for high speed pulsed amplifier and driver applications. These MOSFETs offer very low $r_{DS(ON)}$ and low threshold voltage.

MARKING CODE: 87C

FEATURES:

- ESD protection up to 1800V (Human Body Model)
- 350mW power pissipation
- Very low $r_{DS(ON)}$
- Low threshold voltage
- Logic level compatible
- Small, SOT-563 surface mount package

APPLICATIONS:

- Load/Power switches
- Power supply converter circuits
- Battery powered portable devices

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**	**N-CH (Q1)**	**P-CH (Q2)**	**UNITS**
Drain-Source Voltage	V_{DS}	20		V
Gate-Source Voltage	V_{GS}	8.0		V
Continuous Drain Current (Steady State)	I_D	650		mA
Maximum Pulsed Drain Current (tp=10μs)	I_{DM}	1.3	1.0	A
Power Dissipation (Note 1)	P_D	350		mW
Power Dissipation (Note 2)	P_D	300		mW
Power Dissipation (Note 3)	P_D	150		mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150		°C
Thermal Resistance (Note 1)	Θ_{JA}	357		°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C)		**N-CH (Q1)**			**P-CH (Q2)**			
SYMBOL	**TEST CONDITIONS**	**MIN**	**TYP**	**MAX**	**MIN**	**TYP**	**MAX**	**UNITS**
I_{GSSF}, I_{GSSR}	V_{GS}=4.5V, V_{DS}=0	-	-	1.0	-	-	10	μA
I_{DSS}	V_{DS}=16V, V_{GS}=0	-	-	100	-	-	100	nA
BV_{DSS}	V_{GS}=0, I_D=250μA	20	-	-	20	-	-	V
$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	-	1.1	0.5	-	1.0	V
V_{SD}	V_{GS}=0, I_S=200mA	-	-	1.1	-	-	-	V
V_{SD}	V_{GS}=0, I_S=250mA	-	-	-	-	-	1.1	V
$r_{DS(ON)}$	V_{GS}=4.5V, I_D=600mA	-	0.14	0.23	-	-	-	Ω
$r_{DS(ON)}$	V_{GS}=4.5V, I_D=350mA	-	-	-	-	0.25	0.36	Ω
$r_{DS(ON)}$	V_{GS}=2.5V, I_D=500mA	-	0.2	0.275	-	-	-	Ω
$r_{DS(ON)}$	V_{GS}=2.5V, I_D=300mA	-	-	-	-	0.37	0.5	Ω
$r_{DS(ON)}$	V_{GS}=1.8V, I_D=350mA	-	-	0.7	-	-	-	Ω
$r_{DS(ON)}$	V_{GS}=1.8V, I_D=150mA	-	-	-	-	-	0.8	Ω

Notes: (1) Ceramic or aluminum core PC Board with copper mounting pad area of 4.0mm^2
(2) FR-4 Epoxy PC Board with copper mounting pad area of 4.0mm^2
(3) FR-4 Epoxy PC Board with copper mounting pad area of 1.4mm^2

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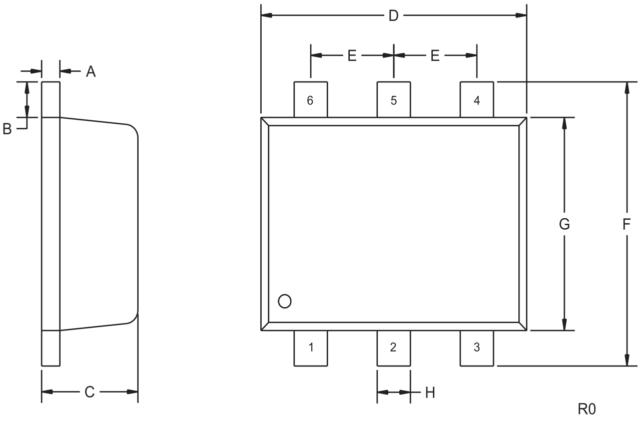
ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C)

SYMBOL	TEST CONDITIONS	N-CH (Q1) MIN	N-CH (Q1) TYP	P-CH (Q2) MIN	P-CH (Q2) TYP	UNITS
g_{FS}	V_{DS}=10V, I_D=400mA	1.0	-	-	-	S
g_{FS}	V_{DS}=10V, I_D=200mA	-	-	0.2	-	S
C_{rss}	V_{DS}=16V, V_{GS}=0, f=1.0MHz	-	18	-	25	pF
C_{iss}	V_{DS}=16V, V_{GS}=0, f=1.0MHz	-	100	-	100	pF
C_{oss}	V_{DS}=16V, V_{GS}=0, f=1.0MHz	-	16	-	21	pF
$Q_{g(tot)}$	V_{DS}=10V, V_{GS}=4.5V, I_D=500mA	-	1.58	-	-	nC
$Q_{g(tot)}$	V_{DS}=10V, V_{GS}=4.5V, I_D=200mA	-	-	-	1.2	nC
Q_{gs}	V_{DS}=10V, V_{GS}=4.5V, I_D=500mA	-	0.17	-	-	nC
Q_{gs}	V_{DS}=10V, V_{GS}=4.5V, I_D=200mA	-	-	-	0.24	nC
Q_{gd}	V_{DS}=10V, V_{GS}=4.5V, I_D=500mA	-	0.24	-	-	nC
Q_{gd}	V_{DS}=10V, V_{GS}=4.5V, I_D=200mA	-	-	-	0.36	nC
t_{on}	V_{DD}=10V, V_{GS}=4.5V, I_D=200mA, R_G=10Ω	-	10	-	38	ns
t_{off}	V_{DD}=10V, V_{GS}=4.5V, I_D=200mA, R_G=10Ω	-	25	-	48	ns

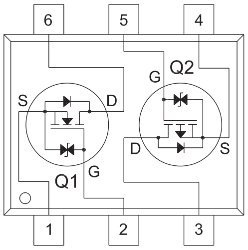
SOT-563 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.004	0.007	0.10	0.18
B	0.008		0.20	
C	0.022	0.024	0.56	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.061	0.067	1.55	1.70
G	0.047		1.20	
H	0.006	0.012	0.15	0.30

SOT-563 (REV: R0)

PIN CONFIGURATION



LEAD CODE:
1) Source Q1
2) Gate Q1
3) Drain Q2
4) Source Q2
5) Gate Q2
6) Drain Q1

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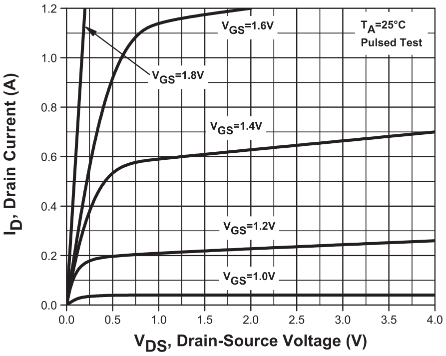
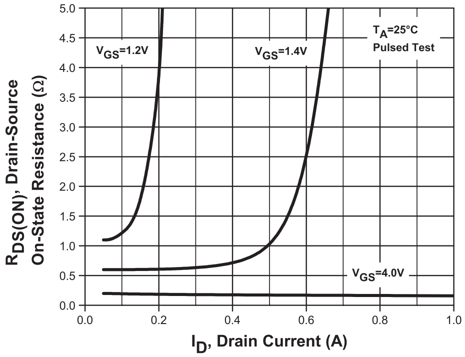
N-CHANNEL TYPICAL ELECTRICAL CHARACTERISTICS

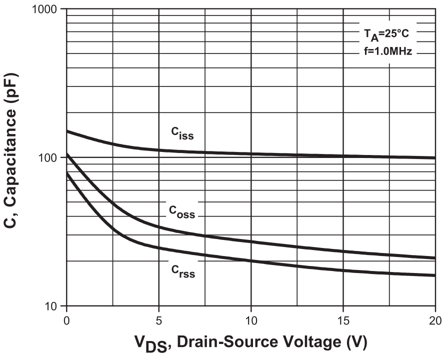
Output Characteristics



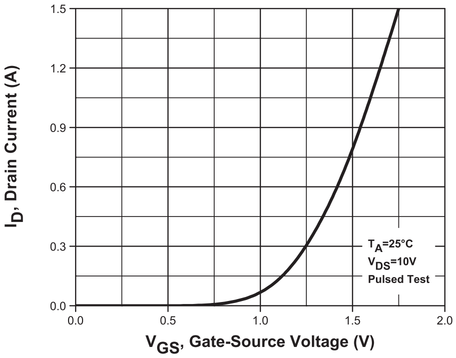
Drain Source On Resistance



Capacitance

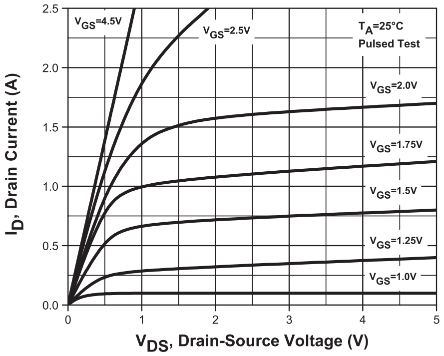


Transfer Characteristics

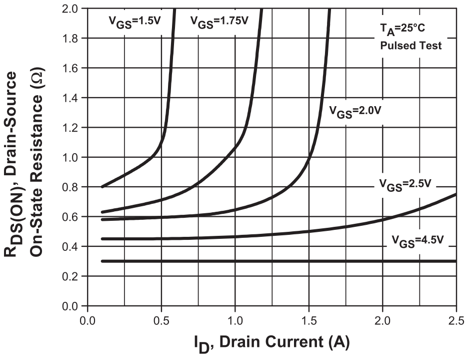


P-CHANNEL TYPICAL ELECTRICAL CHARACTERISTICS

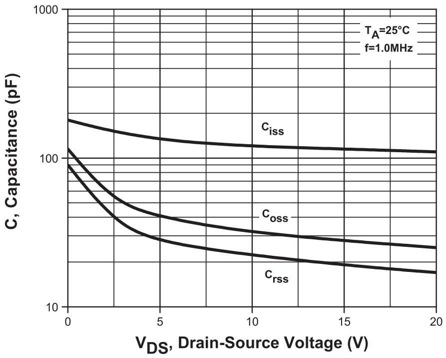
Output Characteristics



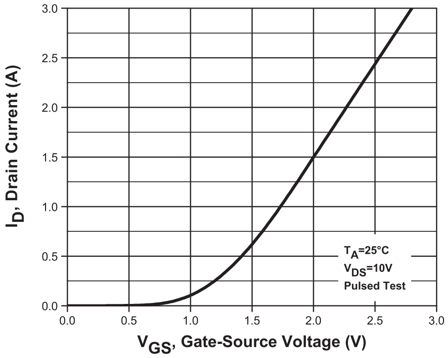
Drain Source On Resistance



Capacitance



Transfer Characteristics



Power Derating