

Description

The CMP10080GU is the P-Channel enhancement mode power field effect transistors with high cell density, trench technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

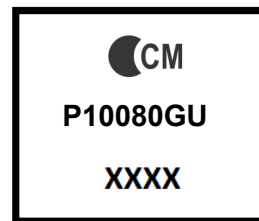
Features

- V_{DS} : -100V
- I_D : -18.5A
- $R_{DS(on)}$ (@ $V_{GS}=-10V$): < 110m Ω
- $R_{DS(on)}$ (@ $V_{GS}=-4.5V$): < 120m Ω
- High density cell design for extremely low $R_{DS(on)}$
- Excellent on-resistance and DC current capability

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Portable Instrumentation
- Load switch

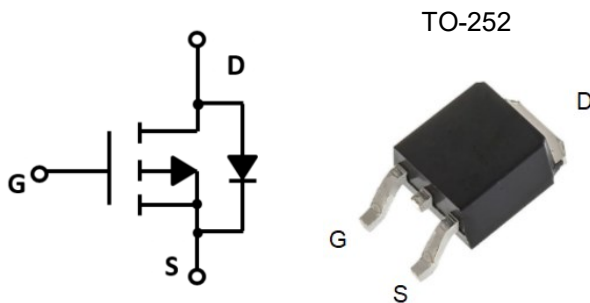
Marking Information



Marking Code = CMP10080GU

Date Code = XXXX

Equivalent Circuit and Pin Configuration



Ordering Information

Part Number	Packaging	Remark
CMP10080GU	2500/Tape & Reel	ROHS

Absolute Maximum Ratings (Tc=25 °C unless otherwise noted)

Parameter	Symbol	Maximum	Unit	
Drain-source Voltage	V_{DS}	-100	V	
Gate-source Voltage	V_{GS}	± 20	V	
Continuous Drain Current	I_D	$T_C=25^\circ C$	-18.5	A
		$T_C=100^\circ C$	-11.7	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	-74	A	
Avalanche Current ⁽²⁾	I_{AS}	-30	A	
Avalanche energy ⁽²⁾ L=0.1mH	E_{AS}	45	mJ	
Total Power Dissipation ⁽³⁾	$P_D @ T_C=25^\circ C$	75	W	
	Derating Factor above 25°C	0.6	W/°C	
Thermal Resistance Junction-to-Case ⁽³⁾	$R_{\theta JC}$	1.67	°C/W	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C	

Electrical Characteristics (Tc=25 °C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BVDSS	VGS=0V, ID=-250μA	-100			V
Zero Gate Voltage Drain Current	IDSS	VDS=-100V, VGS=0V, Tc=25°C			-1	μA
Gate-Body Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=-250μA	-1.0		-3.0	V
Static Drain-Source on-Resistance	RDS(on)	VGS=-10V, ID=-10A		83	110	mΩ
		VGS=-4.5V, ID=-5A		95	120	
Diode Forward Voltage	VSD	IS=-10A, VGS=0V			-1.3	V
Maximum Body-Diode Continuous Current	IS				-18.5	A
Dynamic Parameters						
Input Capacitance	Ciss	VDS=-50V, VGS=0V, f=1MHz		1050		pF
Output Capacitance	Coss			106		
Reverse Transfer Capacitance	Crss			8		
Switching Parameters						
Total Gate Charge	Qg	VGS=-10V, VDS=-50V, ID=-5A		6.5		nC
Gate Source Charge	Qgs			0.8		
Gate Drain Charge	Qgd			1.1		
Turn-on Delay Time	tD(on)	VGS=-10V, VDD=-30V, RL=10Ω, RGEN=6Ω		6.8		ns
Turn-on Rise Time	tr			5.3		
Turn-off Delay Time	tD(off)			126		
Turn-off Fall Time	tf			36.5		

Noted: (1) Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

(2) The test with different tester may be preformed differently.

(3) Device mounted on FR-4 PCB , 1 inch x 0.85 inch x 0.062 inch with 2oz. Copper , t ≤ 10s.

Typical Performance Characteristics

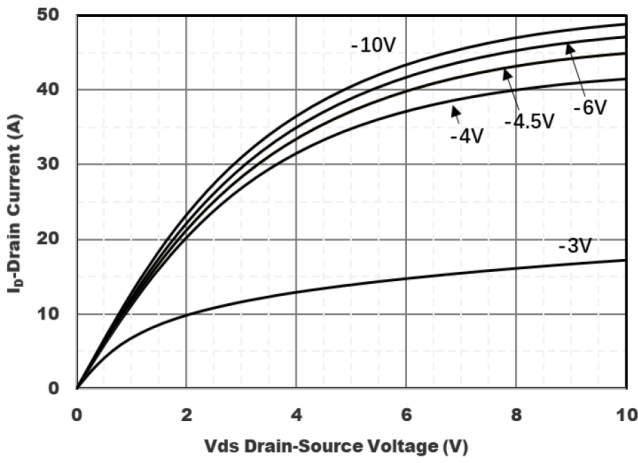


Figure 1. Output Characteristics

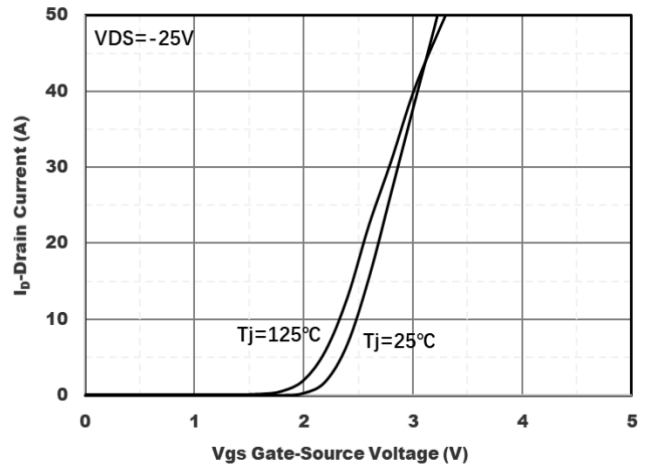


Figure 2. Transfer Characteristics

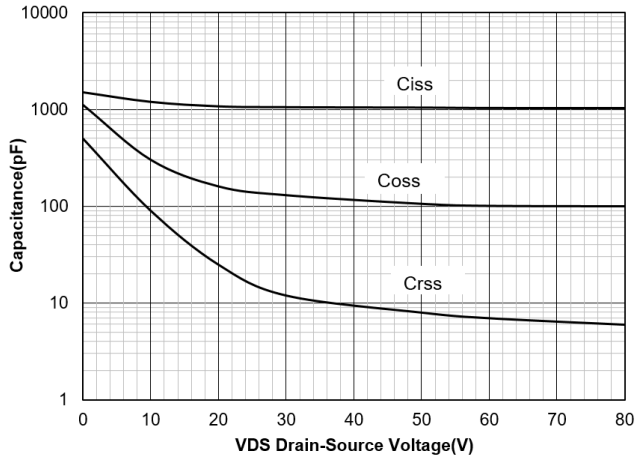


Figure 3. Capacitance Characteristics

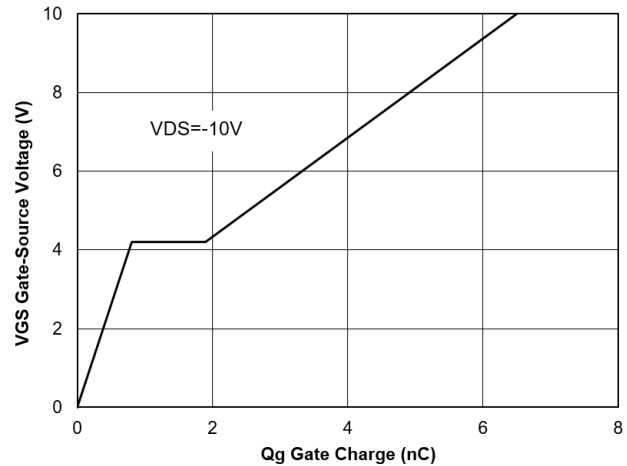


Figure 4. Gate Charge

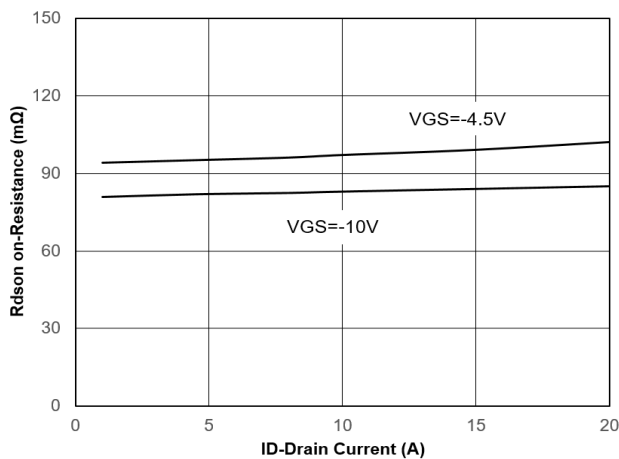


Figure 5. Drain-Source on Resistance

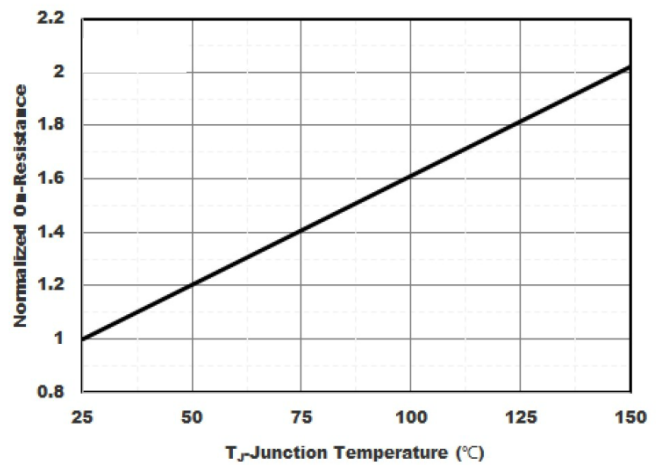


Figure 6. Normalized On-Resistance Vs. Temperature

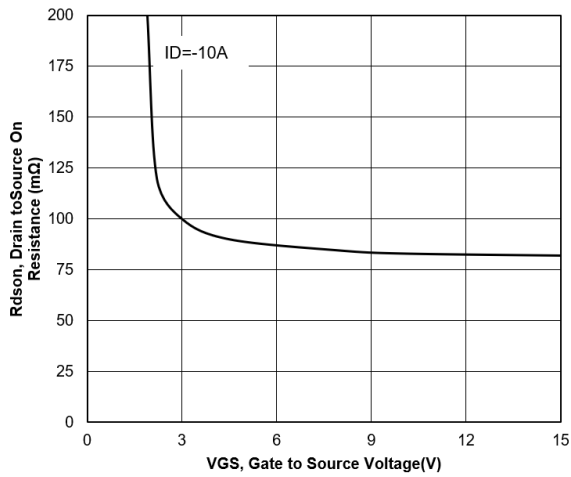


Figure 7. Typical Drain to Source ON Resistance VS Gate Voltage and Drain Current

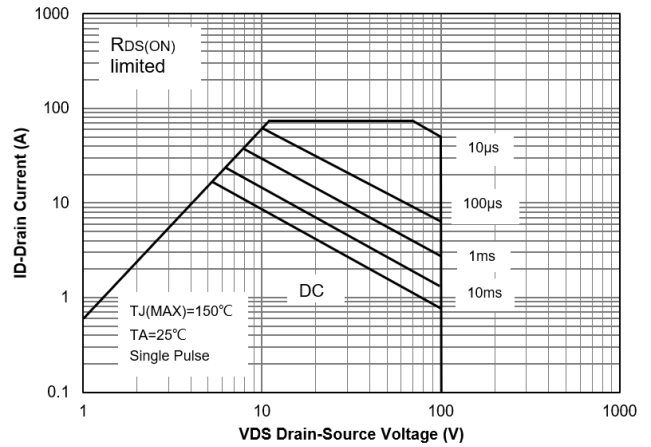


Figure 8. Safe Operation Area

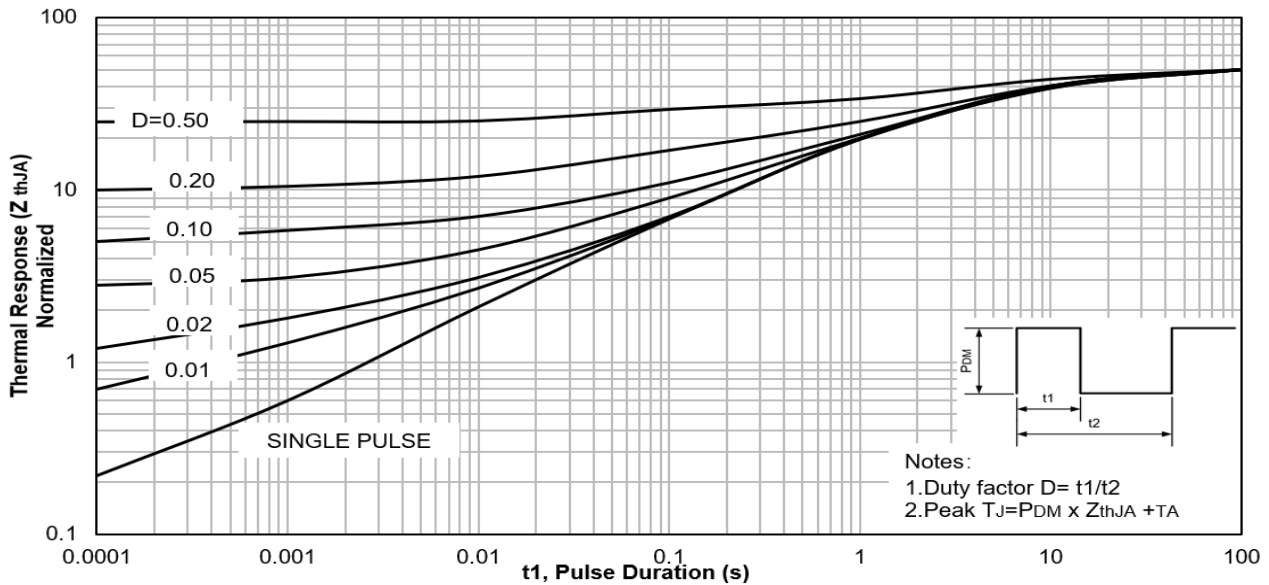


Figure 9. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

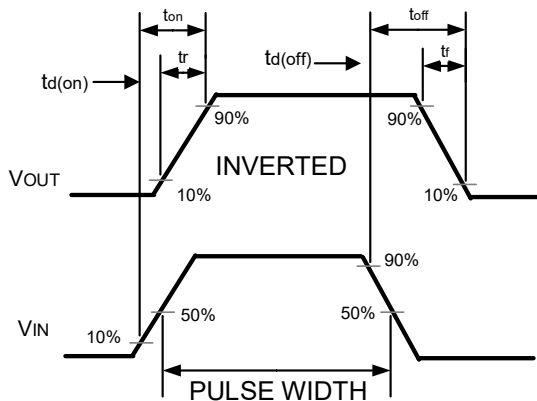
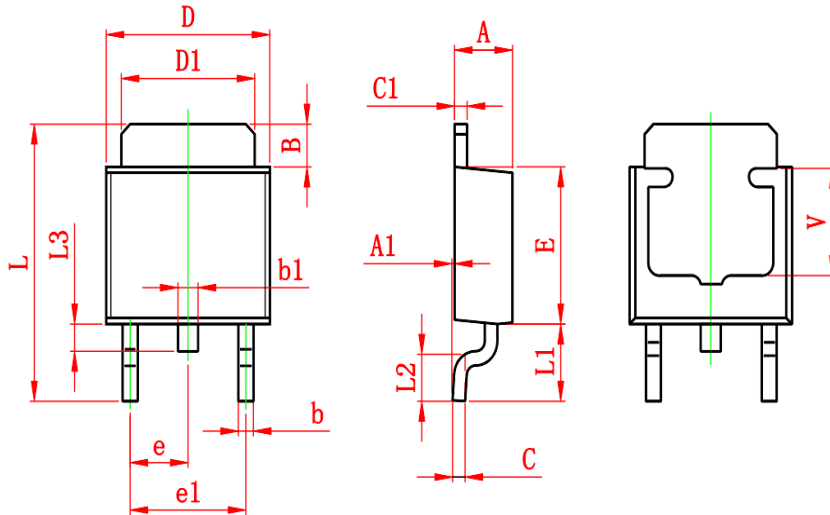


Figure 10. Switching wave

TO-252 Package Outline Drawing



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.800 REF.		0.150 REF.	

Contact Information

Applied Power Microelectronics Inc.

Website: <http://www.appliedpowermicro.com>

Email: sales@appliedpowermicro.com

Phone: +86 (0519) 8399 3606

Applied Power Microelectronics Inc. (APM) reserves the right to make changes to the product specification and data in this document without notice. APM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does APM assume any liability arising from the application or use of any products or circuits, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.