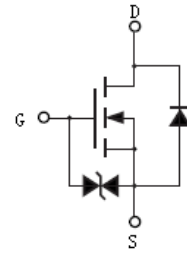


Features

- Very low FOM $R_{DS(on)} \times Q_G$
- Extremely low switching loss
- Excellent stability and uniformity
- 100% Avalanche Tested
- Built-in ESD Diode
- Multi-epi process

HF

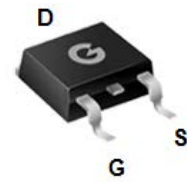


APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Power Factor Correction (PFC)
- TV power & LED Lighting Power
- AC to DC Converters
- Telecom

Mechanical Data

- Case: TO-252
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



TO-252

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
SJM60R490D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	SJM60R490D

Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ\text{C}$) ^{*1}	I_D	8	A
Continuous Drain Current ($T_C = 100^\circ\text{C}$) ^{*1}		5.1	A
Pulsed Drain Current ^{*1}	I_{DM}	24	A
Single Pulse Avalanche Energy ^{*2}	E_{AS}	98	mJ
Gate Source ESD (HBM-C=100pF, R = 1.5k Ω)	$V_{ESD(G-S)}$	2000	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	70	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.79	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 1mA	600	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 600V, V _{GS} = 0V	-	-	1	μA
		V _{DS} = 600V, T _C = 150°C	-	-	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±1	μA
On Characteristics						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = 10V, I _D = 2.6A	-	-	0.49	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2.0	-	4.0	V
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V	-	680	-	pF
C _{OSS}	Output Capacitance	V _{DS} = 400V	-	20	-	
C _{RSS}	Reverse Transfer Capacitance	f = 1.0MHz	-	2.4	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DS} = 300V R _G = 25Ω I _D = 3.3A *3, 4	-	25	-	ns
t _r	Turn-on Rise Time		-	19	-	
t _{d(OFF)}	Turn-Off Delay Time		-	87	-	
t _f	Turn-Off Fall Time		-	18	-	
Q _G	Total Gate-Charge	V _{DS} = 480V	-	16	-	nC
Q _{GS}	Gate to Source Charge	V _{GS} = 10V	-	3.1	-	
Q _{GD}	Gate to Drain (Miller) Charge	I _D = 3.3A *3, 4	-	5.2	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _S = 3.3A, V _{GS} = 0V	-	-	1.3	V
I _S	Diode Continuous Forward Current		-	-	8	A
I _{SM}	Pulsed Source-Drain Current		-	-	24	A
t _{rr}	Reverse Recovery Time	I _F = 3.3A, V _R = 400 V	-	250	-	ns
Q _{rr}	Reverse Recovery Charge	di _F /dt = 100 A/μs	-	1.9	-	μC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. $I_{AS} = 1.5A$, $V_{DD} = 50V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$
3. Pulse Test: Pulse width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
4. Essentially Independent of Operating Temperature

Ratings and Characteristics Curves (@ $T_A = 25^\circ C$ unless otherwise specified)

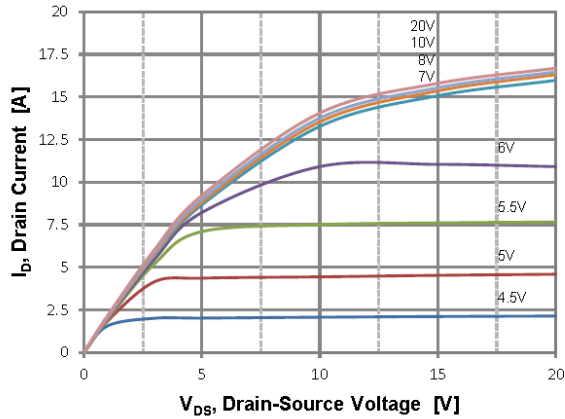


Figure 1. On Region Characteristics

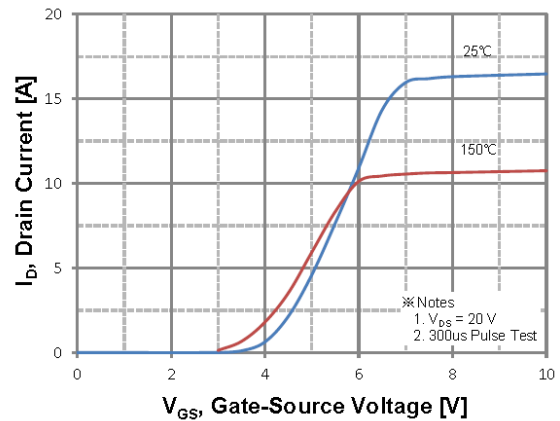


Figure 2. Transfer Characteristics

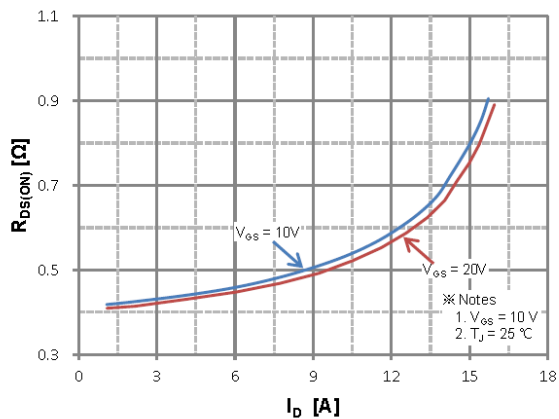


Figure 3. On Resistance Variation vs Drain Current and Gate Voltage

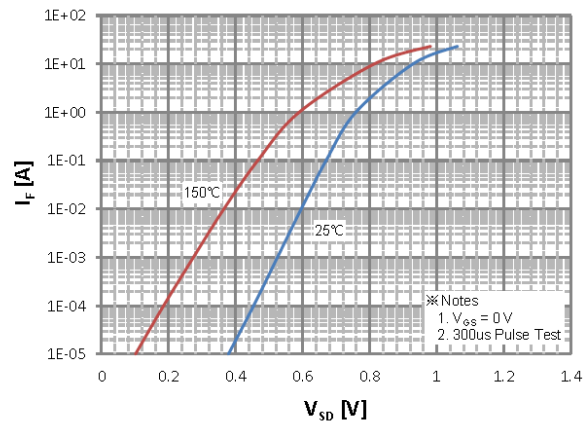


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

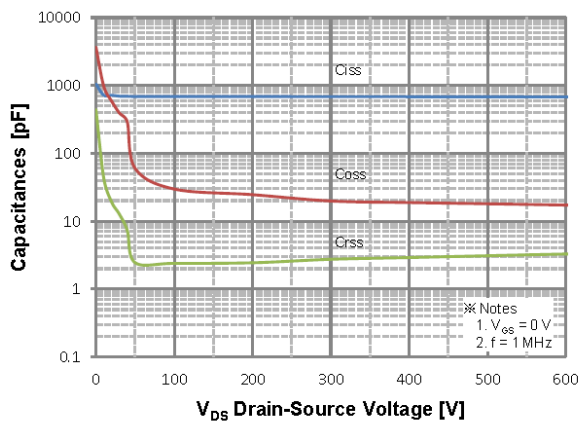


Figure 5. Capacitance Characteristics

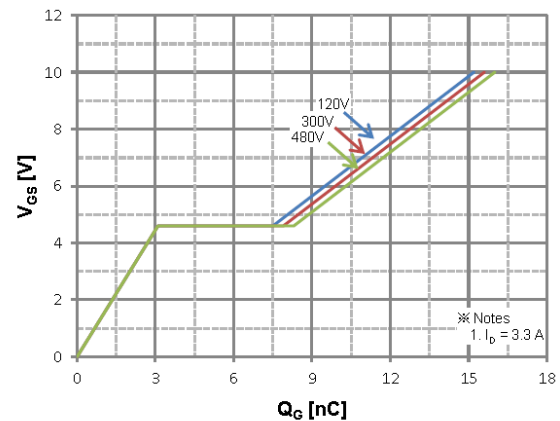


Figure 6. Gate Charge Characteristics

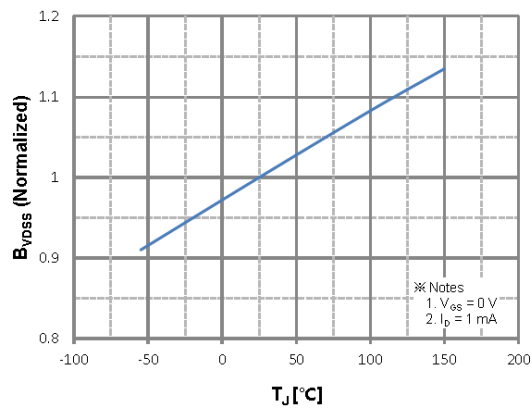


Figure 7. Breakdown Voltage Variation vs. Temperature

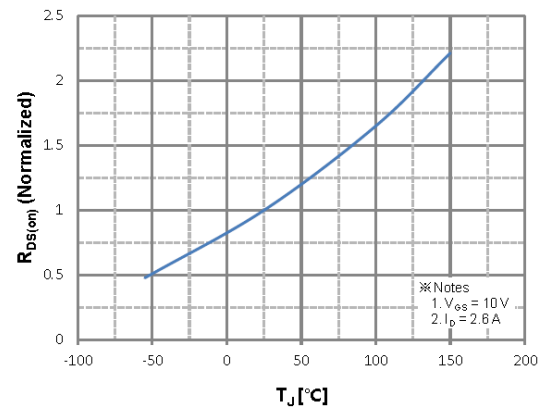


Figure 8. On-Resistance Variation vs. Temperature

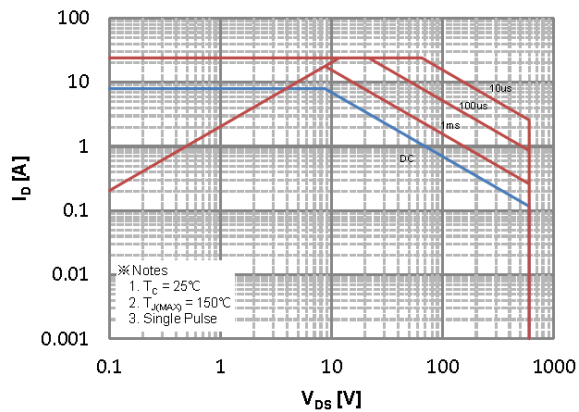


Figure 9. Maximum Safe Operating Area

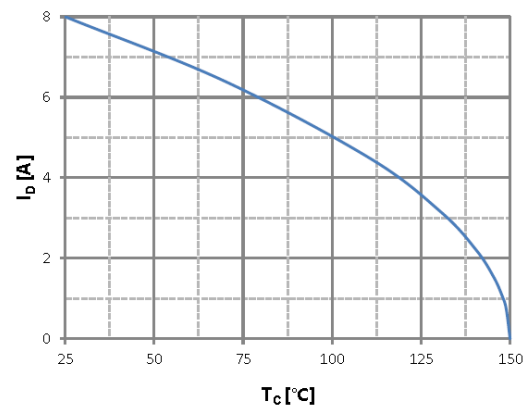
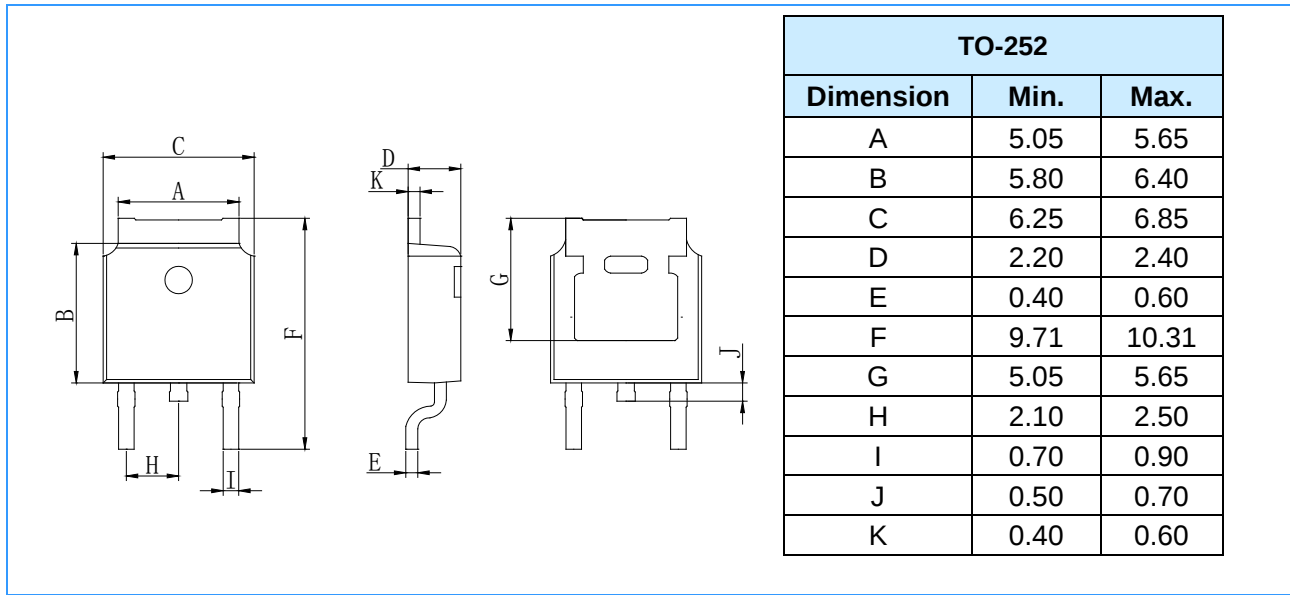
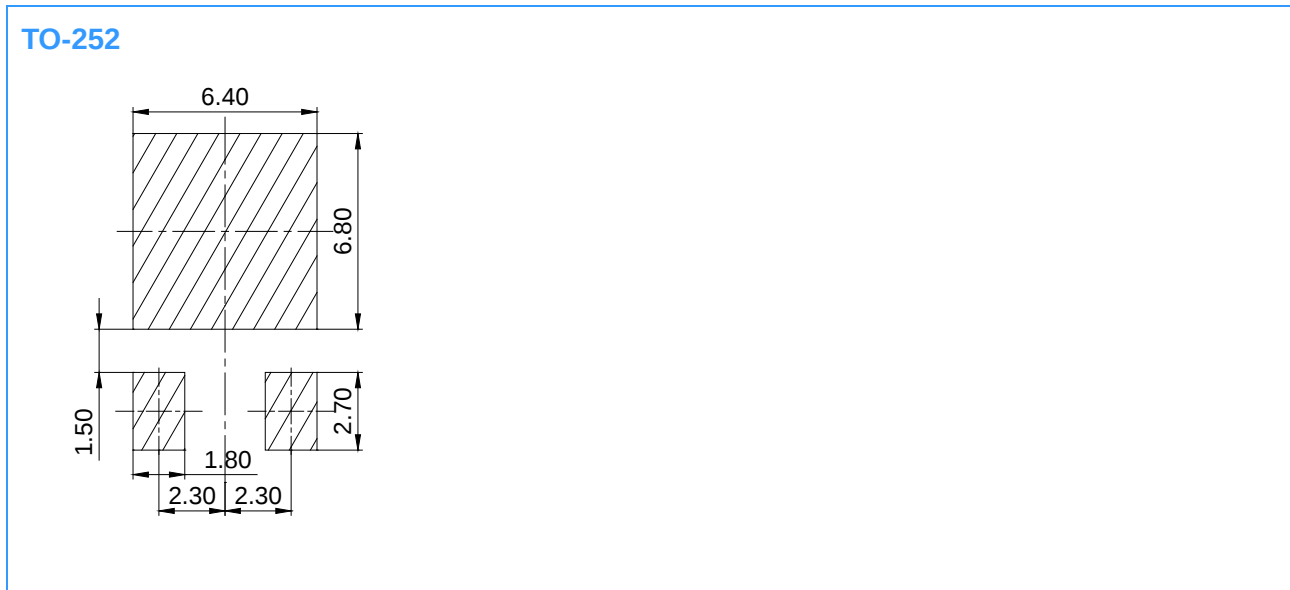


Figure 10. Maximum Drain Current vs. Case Temperature

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.