

### Features

- Extremely low switching loss
- Excellent stability and uniformity
- Built-in ESD diode

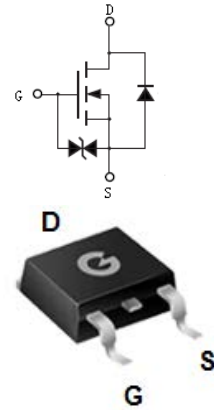
HF

### 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

**100% UIS Tested!**

**100%  $\Delta V_{DS}$  Tested!**



TO-252

### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
SJ70R710D	TO-252	80pcs / Tube or 2500pcs / Tape & Reel	SJ70R710D

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	$V_{DSS}$	700	V
Gate-to-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current( $T_C = 25^\circ\text{C}$ ) <sup>*1</sup>	$I_D$	6.4	A
Continuous Drain Current( $T_C = 100^\circ\text{C}$ ) <sup>*1</sup>	$I_D$	4	A
Pulsed Drain Current <sup>*1</sup>	$I_{DM}$	19	A
Single Pulse Avalanche Energy <sup>*2</sup>	$E_{AS}$	62	mJ

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation( $T_C = 25^\circ\text{C}$ )	$P_D$	27	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	80	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	4.61	$^\circ\text{C/W}$
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
<b>Static Characteristics</b>						
$V_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 1mA$	700	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 700V, V_{GS} = 0V$	-	-	1	$\mu A$
		$V_{DS} = 700V, V_{GS} = 0V, T_C = 150^\circ\text{C}$	-	-	100	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	$\pm 1$	$\mu A$
<b>On Characteristics</b>						
$R_{DS(ON)}$	Static Drain-Source On-resistance *3	$V_{GS} = 10V, I_D = 1.9A$	-	-	0.71	$\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	-	4	V
<b>Dynamic Characteristics</b>						
$C_{ISS}$	Input Capacitance	$V_{GS} = 0V$	-	640	-	$\mu F$
$C_{OSS}$	Output Capacitance	$V_{DS} = 400V$	-	16	-	
$C_{RSS}$	Reverse Transfer Capacitance	$f = 1.0MHz$	-	2.9	-	
<b>Switching Characteristics</b> *3						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 350V$ $R_G = 25\Omega$ $I_D = 2.9A$	-	23	-	ns
$t_r$	Turn-on Rise Time		-	18	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	77	-	
$t_f$	Turn-Off Fall Time		-	18	-	
$Q_G$	Total Gate-Charge	$V_{DD} = 560V$	-	14	-	nC
$Q_{GS}$	Gate to Source Charge	$V_{GS} = 10V$	-	2.6	-	
$Q_{GD}$	Gate to Drain (Miller) Charge	$I_D = 2.9A$	-	4.5	-	
<b>Source-Drain Diode Characteristics</b>						
$V_{SD}$	Diode Forward Voltage	$I_{SD} = 2.9A, V_{GS} = 0V$	-	-	1.3	V
$I_S$	Diode Continuous Forward Current		-	-	6.4	A
$I_{SM}$	Pulsed Source-Drain Current		-	-	19	A
$t_{rr}$	Reverse Recovery Time	$I_F = 2.9A, V_R = 400V$	-	250	-	ns
$Q_{rr}$	Reverse Recovery Charge	$di/dt = 100 A/\mu s$	-	1.8	-	$\mu C$

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2.  $I_{AS} = 1.2A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ\text{C}$
3. Pulse Test: Pulse width  $\leq 300\mu s, \text{Duty Cycle } \leq 2\%$

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

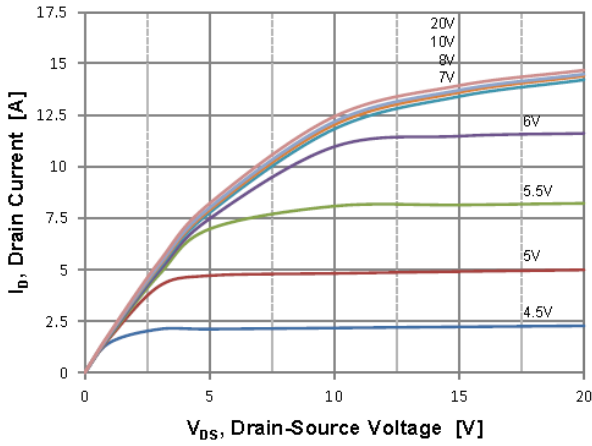


Fig 1 On-Region Characteristics

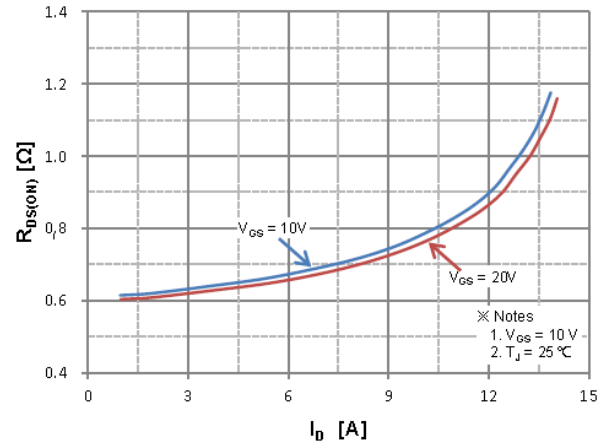


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

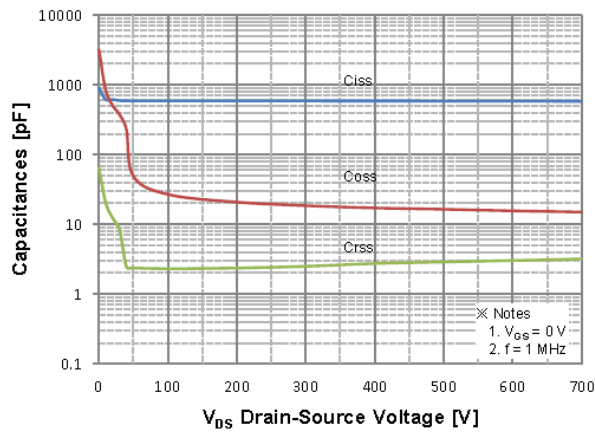


Fig 3 Capacitance Characteristics

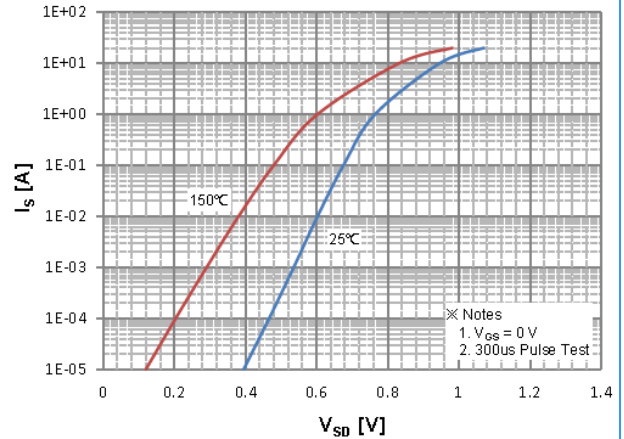


Fig 4 Body-Diode Characteristics

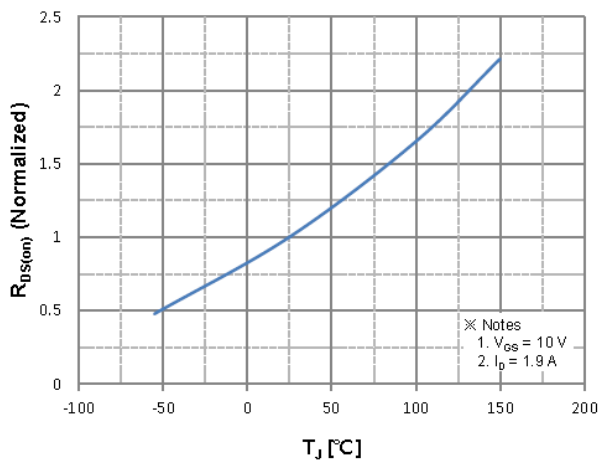


Fig 5 On-Resistance vs. Junction Temperature

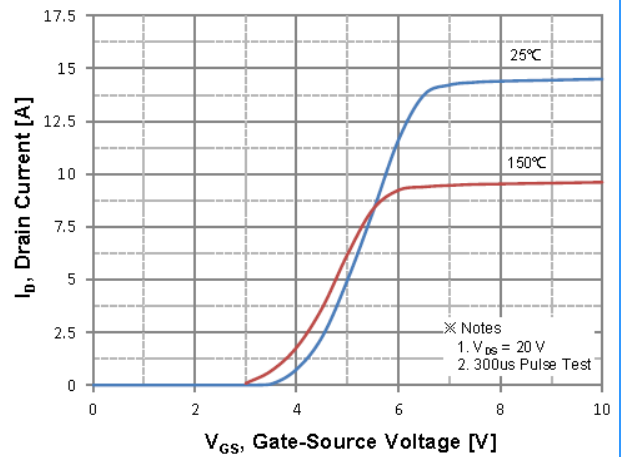


Fig 6 Transfer Characteristics

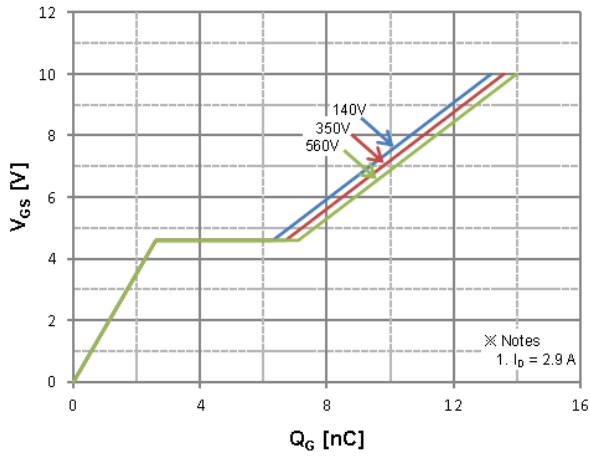


Fig 7 Gate-Charge Characteristics

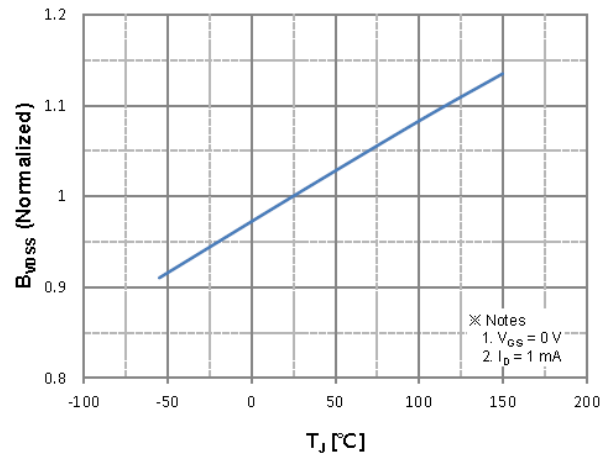
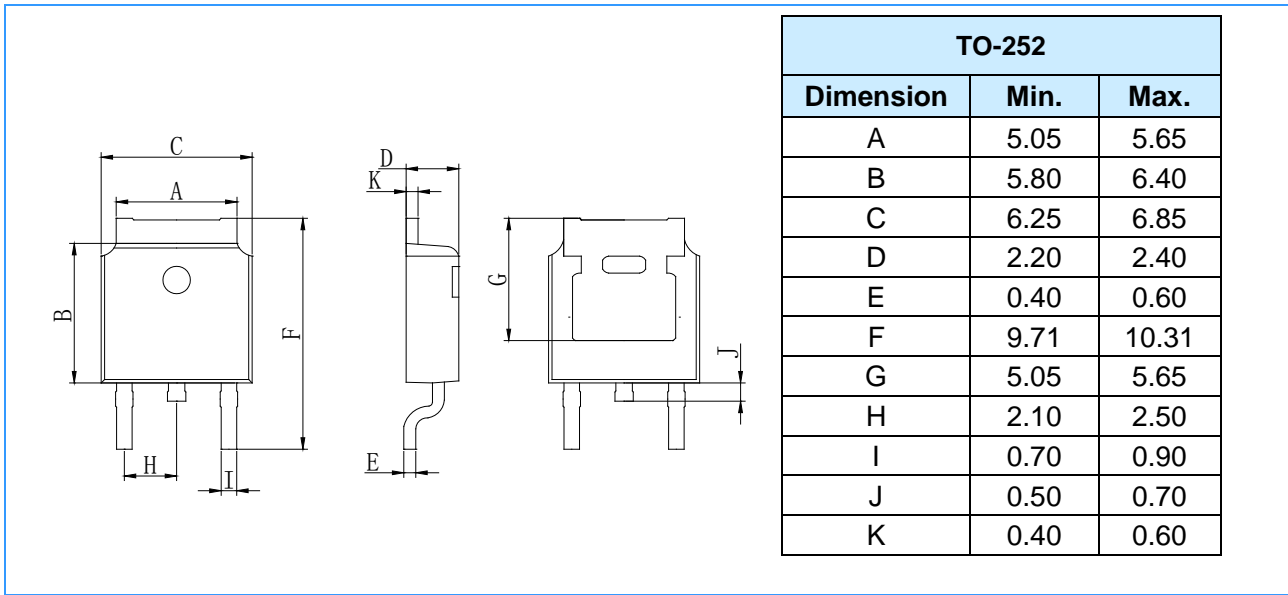
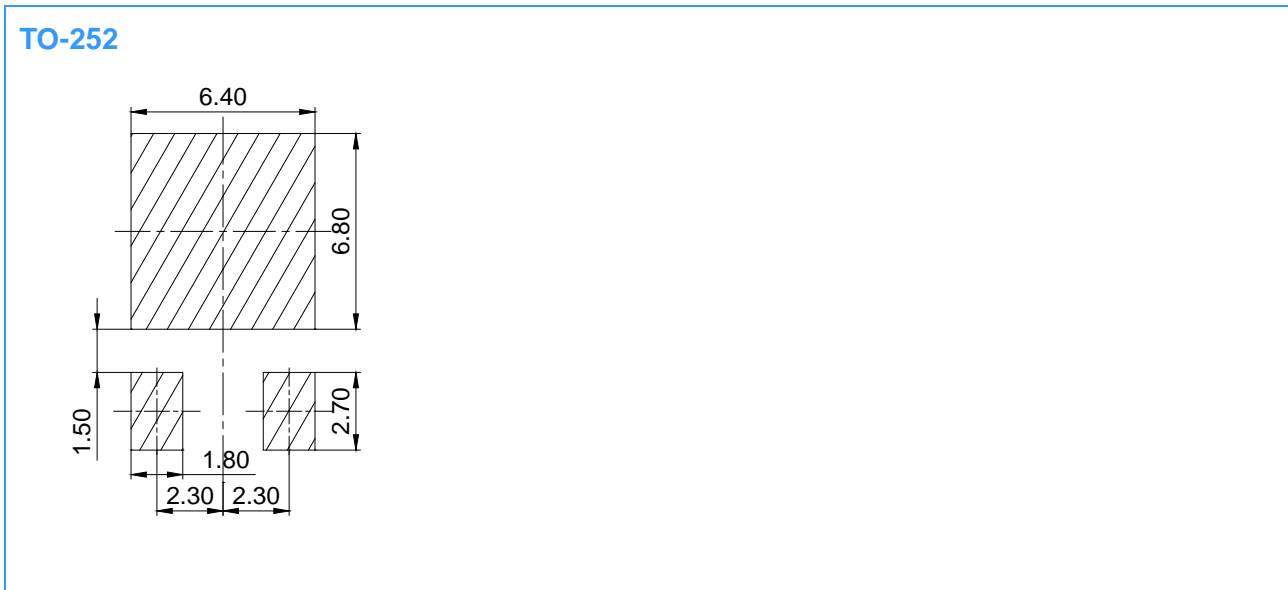


Fig 8 Drain-Source vs. Junction Temperature

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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