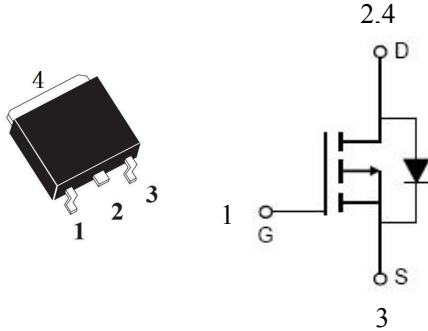


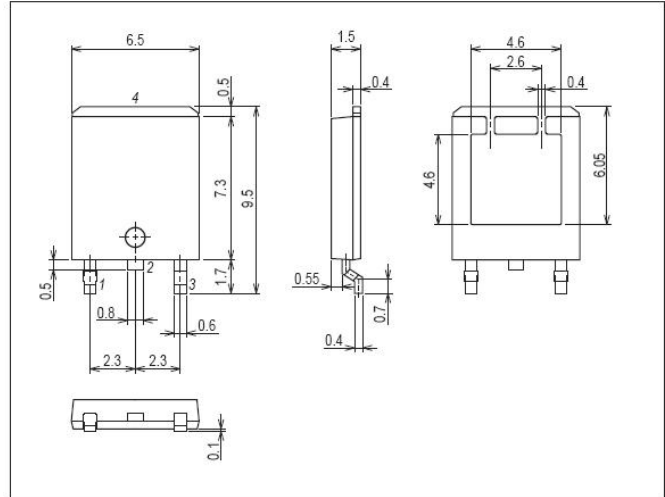
### Features

- Low On resistance.
- -10V drive.
- RoHS compliant.



### Package Dimensions

TO-252



### Specifications

Absolute Maximum Ratings at  $T_a=25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-60	V
Gate-to-Source Voltage	$V_{GSS}$		+20	V
Drain Current (DC)	$I_D$		-10	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu S$ , duty cycle $\leq 1\%$	-20	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) 1unit	25	W
Avalanche energy	$E_{AS}$	$L=0.1mH$	150	mJ
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55~+150	°C

Electrical Characteristics at  $T_a=25^{\circ}C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-250\mu A$ , $V_{GS}=0V$	-60	-	-	V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-48V$ , $V_{GS}=0V$	-	-	-1.0	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 25V$ , $V_{DS}=0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu A$	-1.5	-2.5	-3.0	V
	$R_{DS(ON)}$	$I_D=-10A$ , $V_{GS}=-10V$	-	150	160	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-30V$ , $V_{GS}=0V$ , $f=1MHz$			1200	pF
Output Capacitance	$C_{oss}$	$V_{DS}=-30V$ , $V_{GS}=0V$ , $f=1MHz$		115		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-30V$ , $V_{GS}=0V$ , $f=1MHz$		7		pF

## Electrical Characteristics at $T_a=25^{\circ}\text{C}$ (Continued)

Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=-30\text{V}, R_L=2.5\Omega, R_{GEN}=3\Omega,$ $V_{GS}=-10\text{V}$	-	9	-	nS
Rise Time	$t_r$		-	10	-	nS
Turn-off Delay Time	$t_{d(off)}$		-	25	-	nS
Fall Time	$t_f$		-	11	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=-30\text{V}, V_{GS}=-10\text{V}, I_D=-10\text{A}$		16		nC
Gate-to-Source Charge	$Q_{gs}$			8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			3.0		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-7.8\text{A}, V_{GS}=0\text{V}$	-	-	-1.0	V

## Typical Characteristics at $T_a=25^{\circ}\text{C}$

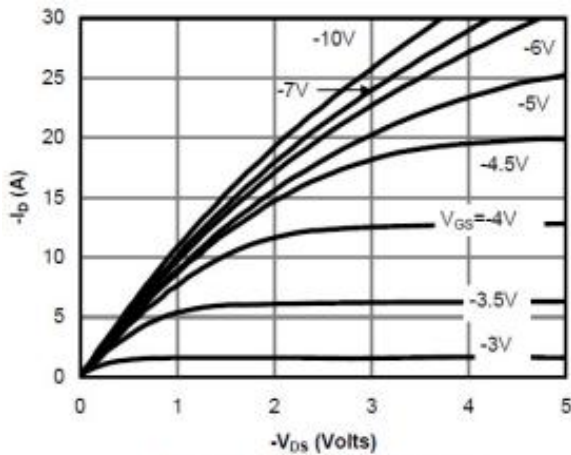


Fig 1: On-Region Characteristics

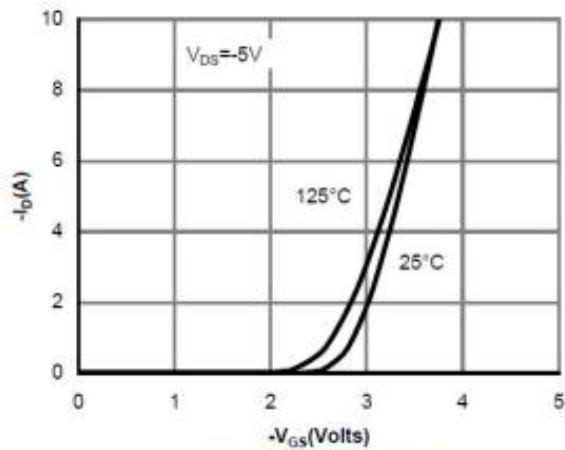


Figure 2: Transfer Characteristics

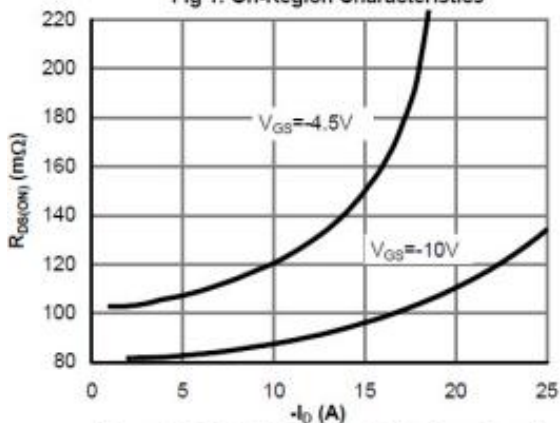


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

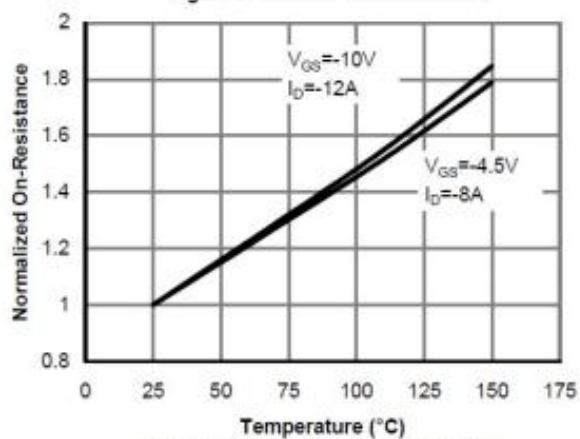


Figure 4: On-Resistance vs. Junction Temperature

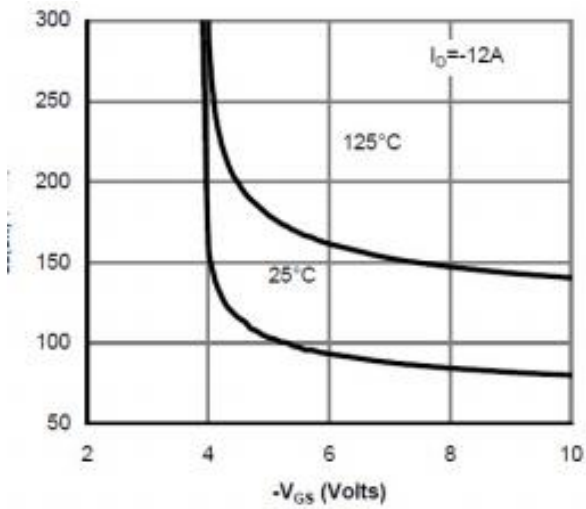


Figure 5: On-Resistance vs. Gate-Source Voltage

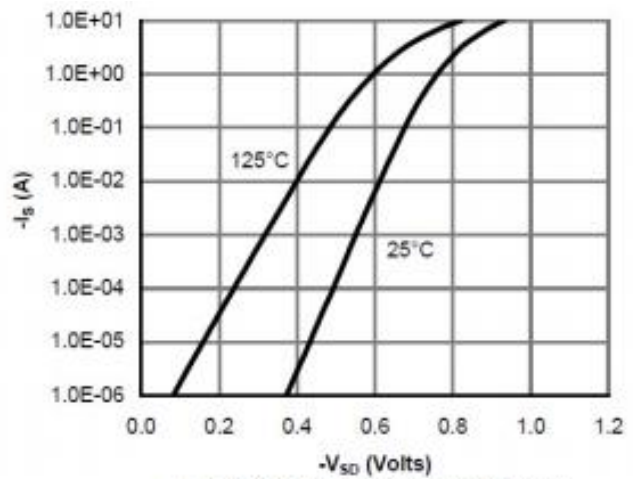


Figure 6: Body-Diode Characteristics

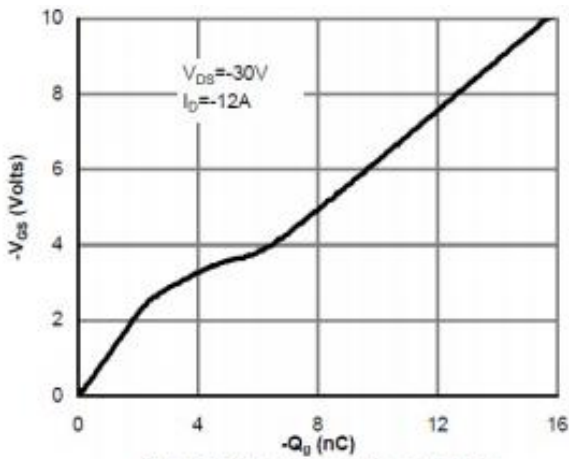


Figure 7: Gate-Charge Characteristics

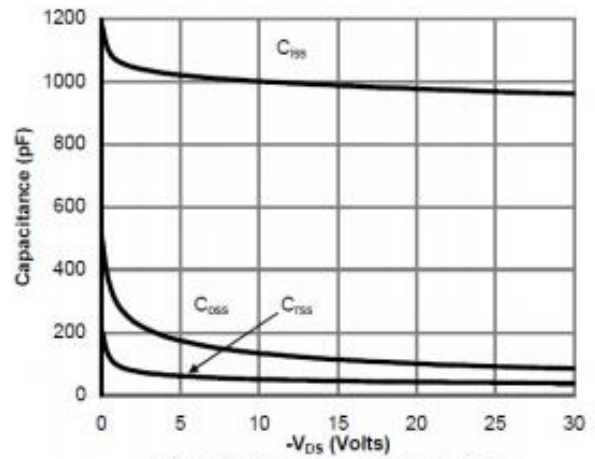


Figure 8: Capacitance Characteristics

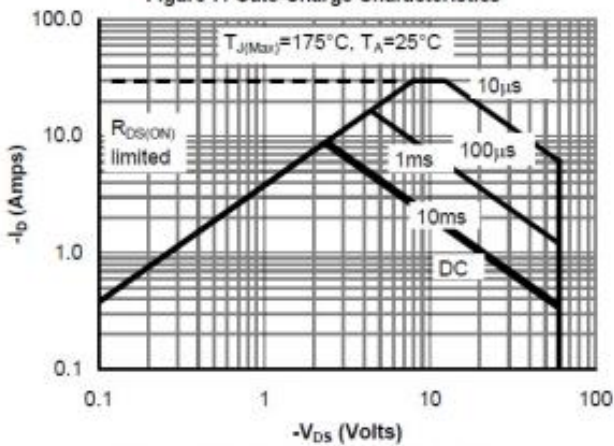


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

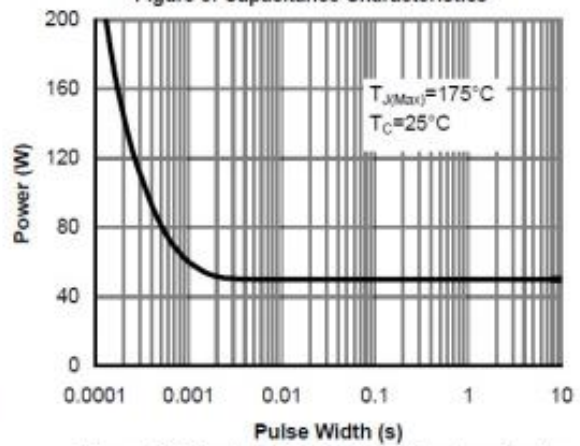


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

# Si607D

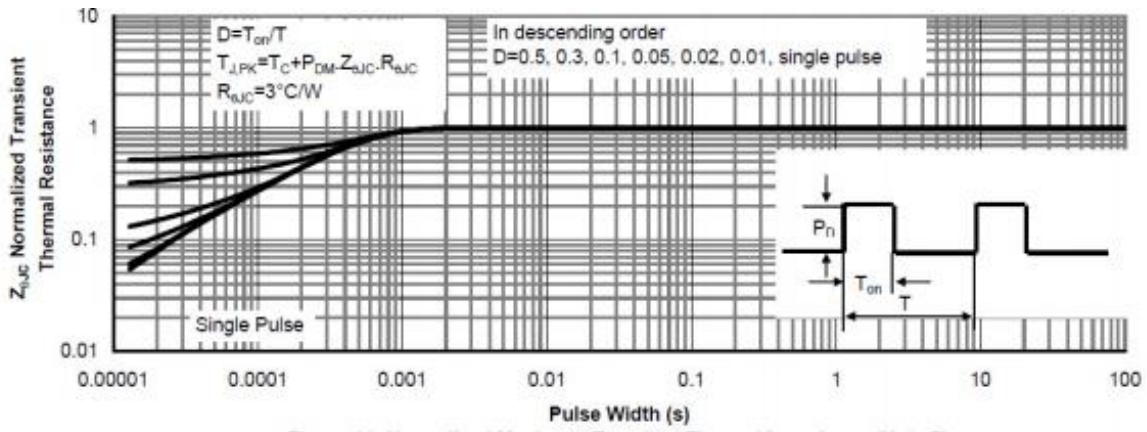


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)