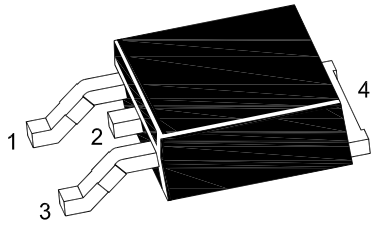
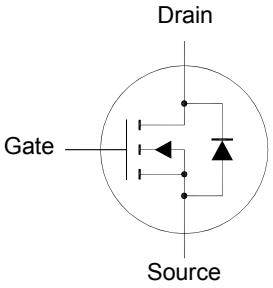
SFTN3172R

N-Channel Enhancement Mode Field Effect Transistor



1. Gate 2. Drain 3. Source 4. Drain
TO-252 Plastic Package



Absolute Maximum Ratings

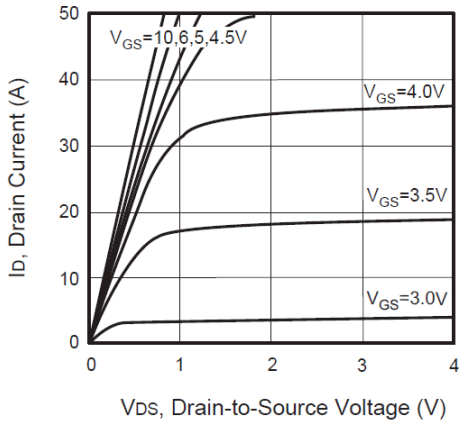
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	36	A
Peak Drain Current	I_{DM}	140	A
Power Dissipation T_C = 25℃	P_D	42	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to + 175	℃

Thermal Characteristics

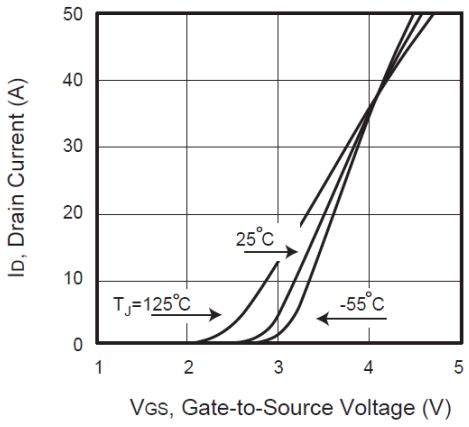
Parameter	Symbol	Max.	Unit
Maximum Thermal Resistance from Juntion to Case	$R_{\theta JC}$	3	℃/W
Maximum Thermal Resistance from Juntion to Ambient	$R_{\theta JA}$	50	℃/W

Characteristics at T_C = 25℃ unless otherwise specified

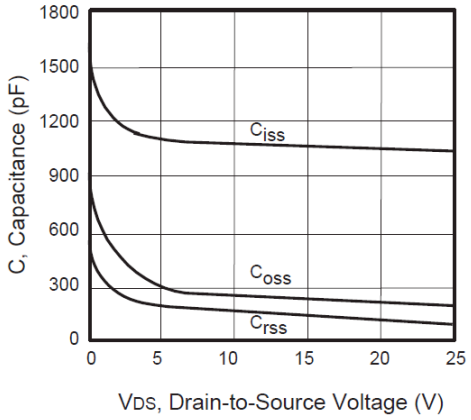
Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 250 μA	BV_{DSS}	30	-	-	V
Drain-Source Leakage Current at V_{DS} = 30 V	I_{DSS}	-	-	1	μA
Gate Leakage Current at V_{GS} = ± 20 V	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 250 uA	$V_{GS(th)}$	1	-	3	V
Drain-Source On-State Resistance at V_{GS} = 10 V, I_D = 9.5 A at V_{GS} = 4.5 V, I_D = 8 A	$R_{DS(on)}$	- -	- -	20 28	mΩ
Forward Transconductance at V_{DS} = 5 V, I_D = 9.5 A	g_{FS}	-	5	-	S
Diode Forward Voltage at I_S = 2.3 A, V_{GS}= 0 V	V_{SD}	-	-	1.2	V
Maximun Body-Diode Continuous Current	I_S	-	-	36	A
Input Capacitance at V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	C_{iss}	-	1080	-	pF
Output Capacitance at V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	C_{oss}	-	220	-	pF
Reverse Transfer Capacitance at V_{GS} = 0 V, V_{DS} = 15 V, f = 1 MHz	C_{rss}	-	140	-	pF
Turn-On Delay Time at I_D = 1 A, V_{DD} = 15 V, V_{GS} = 10 V, R_G= 6 Ω	$t_{d(on)}$	-	-	30	ns
Turn-On Rise Time at I_D = 1 A, V_{DD} = 15 V, V_{GS} = 10 V, R_G= 6 Ω	t_r	-	-	20	ns
Turn-Off Delay Time at I_D = 1 A, V_{DD} = 15 V, V_{GS} = 10 V, R_G= 6 Ω	$t_{d(off)}$	-	-	60	ns
Turn-Off Fall Time at I_D = 1 A, V_{DD} = 15 V, V_{GS} = 10 V, R_G= 6 Ω	t_f	-	-	20	ns



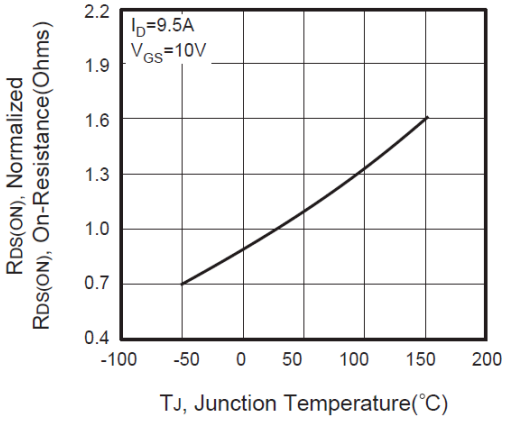
Output Characteristics



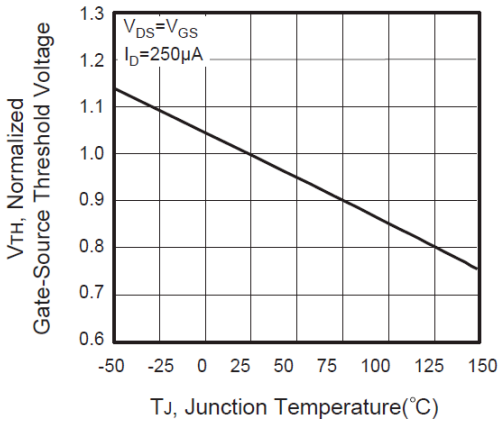
Transfer Characteristics



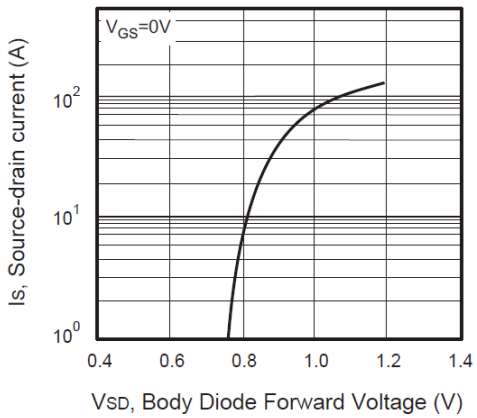
Capacitance



On-Resistance Variation with Temperature

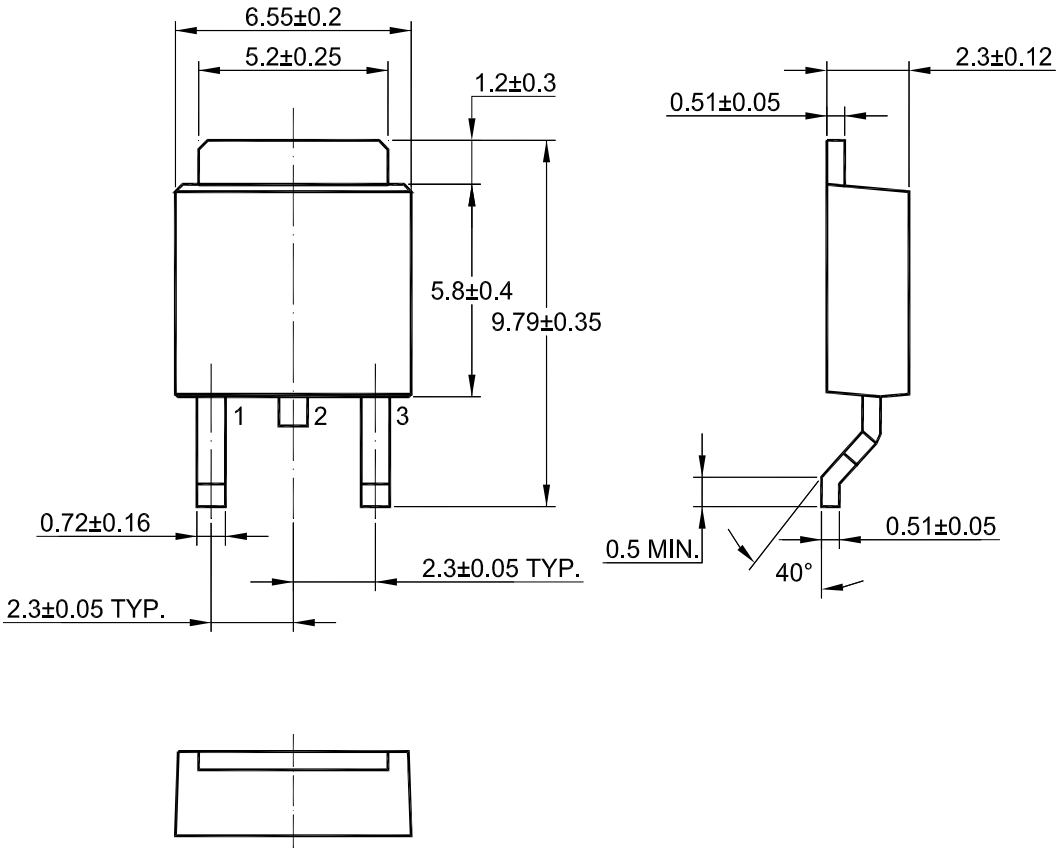


Gate Threshold Variation with Temperature



Body Diode Forward Voltage Variation with Source Current

TO-252 PACKAGE OUTLINE



Dimensions in mm