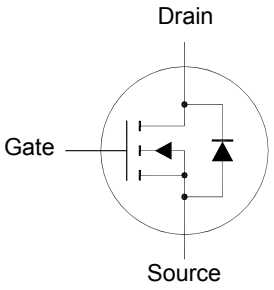
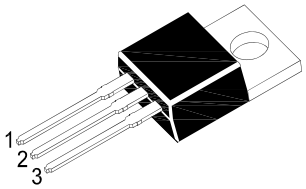
SFTN1210

N-Channel Enhancement Mode Power MOSFET





1.Gate 2.Drain 3.Source

TO-220 Plastic Package

Absolute Maximum Ratings

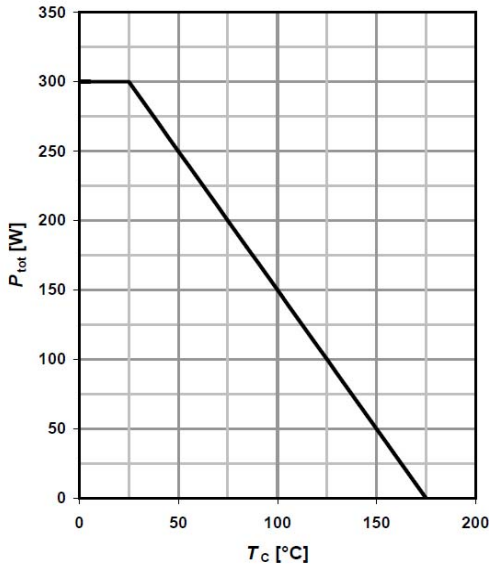
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current T_C = 25℃ T_C = 100℃	I_D	100 100	A
Peak Drain Current T_C = 25℃	I_{DM}	400	A
Power Dissipation T_C = 25℃	P_{tot}	300	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to + 175	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Maximum Thermal Resistance from Juntion to Case	$R_{\theta JC}$	0.5	K/W
Maximum Thermal Resistance from Juntion to Ambient	$R_{\theta JA}$	62	K/W

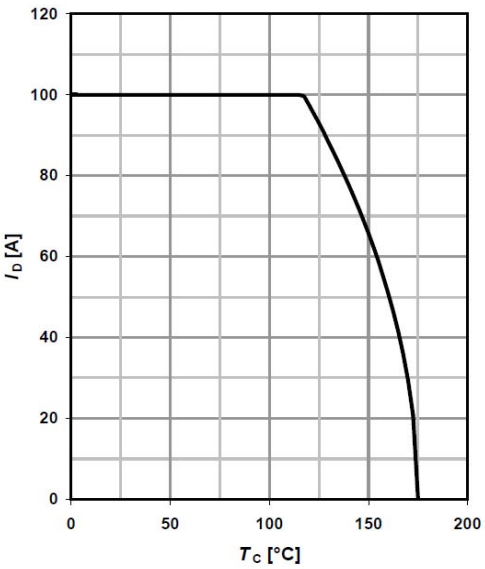
Characteristics at T_J = 25℃ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 1 mA	BV_{DSS}	120	-	-	V
Drain-Source Leakage Current at V_{DS} = 120 V at V_{DS} = 120 V, T_J = 125℃	I_{DSS}	- -	- -	1 100	μA
Gate Leakage Current at V_{GS} = 20 V	I_{GSS}	-	-	100	nA
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 230 μA	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance at V_{GS} = 10 V, I_D = 100 A	$R_{DS(on)}$	-	-	4.8	mΩ
Forward Transconductance at $\|V_{DS}\| > 2 \times \|I_D\| \times R_{DS(on)max}$, I_D = 100 A	g_{FS}	81	-	-	S
Diode Forward Voltage at I_F = 100 A, V_{GS}= 0 V	V_{SD}	-	-	1.2	V
Maximun Body-Diode Continuous Current	I_S	-	-	100	A
Input Capacitance at V_{GS} = 0 V, V_{DS} = 60 V, f = 1 MHz	C_{iss}	-	-	12000	pF
Output Capacitance at V_{GS} = 0 V, V_{DS} = 60 V, f = 1 MHz	C_{oss}	-	-	1530	pF
Reverse Transfer Capacitance at V_{GS} = 0 V, V_{DS} = 60 V, f = 1 MHz	C_{rss}	-	-	81	pF
Turn-On Delay Time at I_D = 50 A, V_{DD} = 60 V, V_{GS} = 10 V, R_G= 1.6 Ω	$t_{d(on)}$	-	31	-	ns
Turn-On Rise Time at I_D = 50 A, V_{DD} = 60 V, V_{GS} = 10 V, R_G= 1.6 Ω	t_r	-	55	-	ns
Turn-Off Delay Time at I_D = 50 A, V_{DD} = 60 V, V_{GS} = 10 V, R_G= 1.6 Ω	$t_{d(off)}$	-	64	-	ns
Turn-Off Fall Time at I_D = 50 A, V_{DD} = 60 V, V_{GS} = 10 V, R_G= 1.6 Ω	t_f	-	19	-	ns



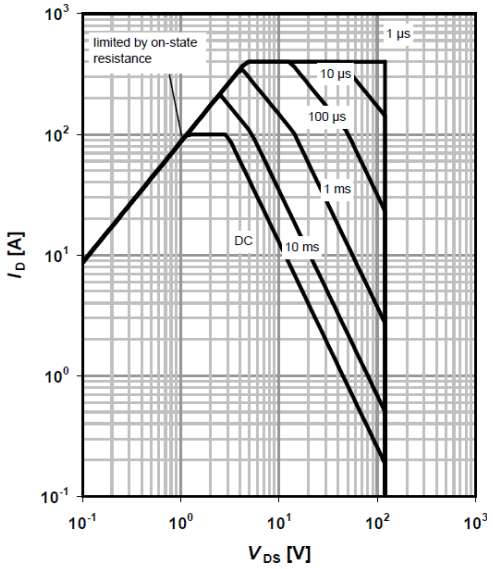
Power dissipation

$P_{tot}=f(T_C)$



Drain current

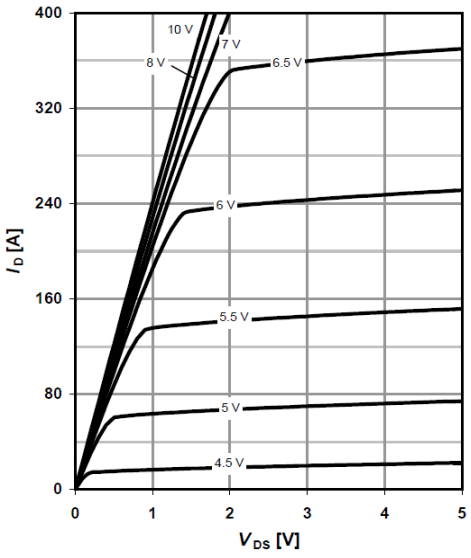
$I_D=f(T_C)$; $V_{GS}\geq 10$ V



Safe operating area

$I_D=f(V_{DS})$; $T_C=25$ °C; $D=0$

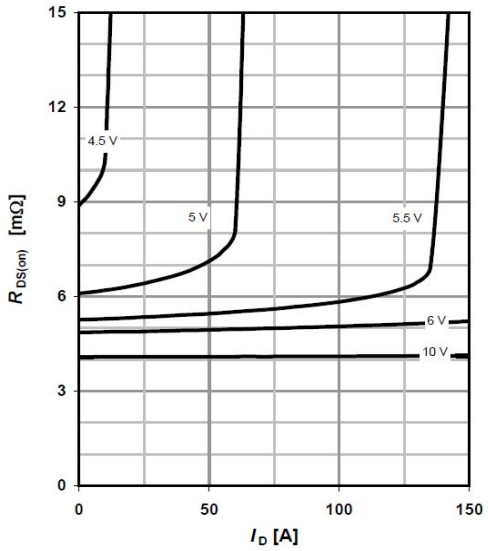
parameter: t_p



Typ. output characteristics

$I_D=f(V_{DS})$; $T_j=25$ °C

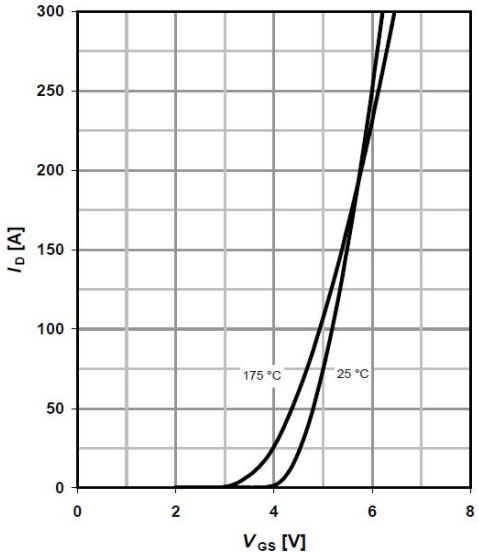
parameter: V_{GS}



Typ. drain-source on resistance

$R_{DS(on)}=f(I_D)$; $T_j=25$ °C

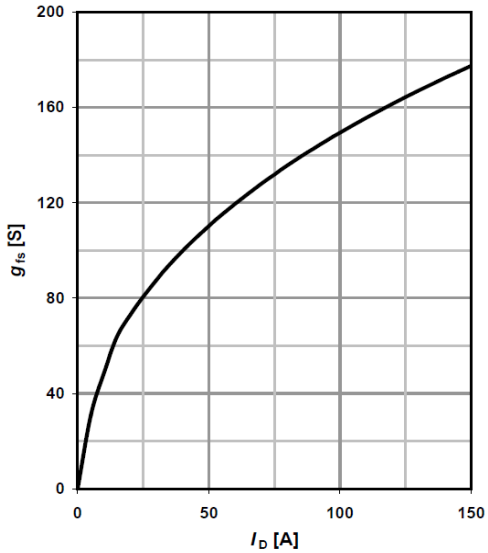
parameter: V_{GS}



Typ. transfer characteristics

$I_D=f(V_{GS})$; $|V_{DS}|>2|I_D|R_{DS(on)max}$

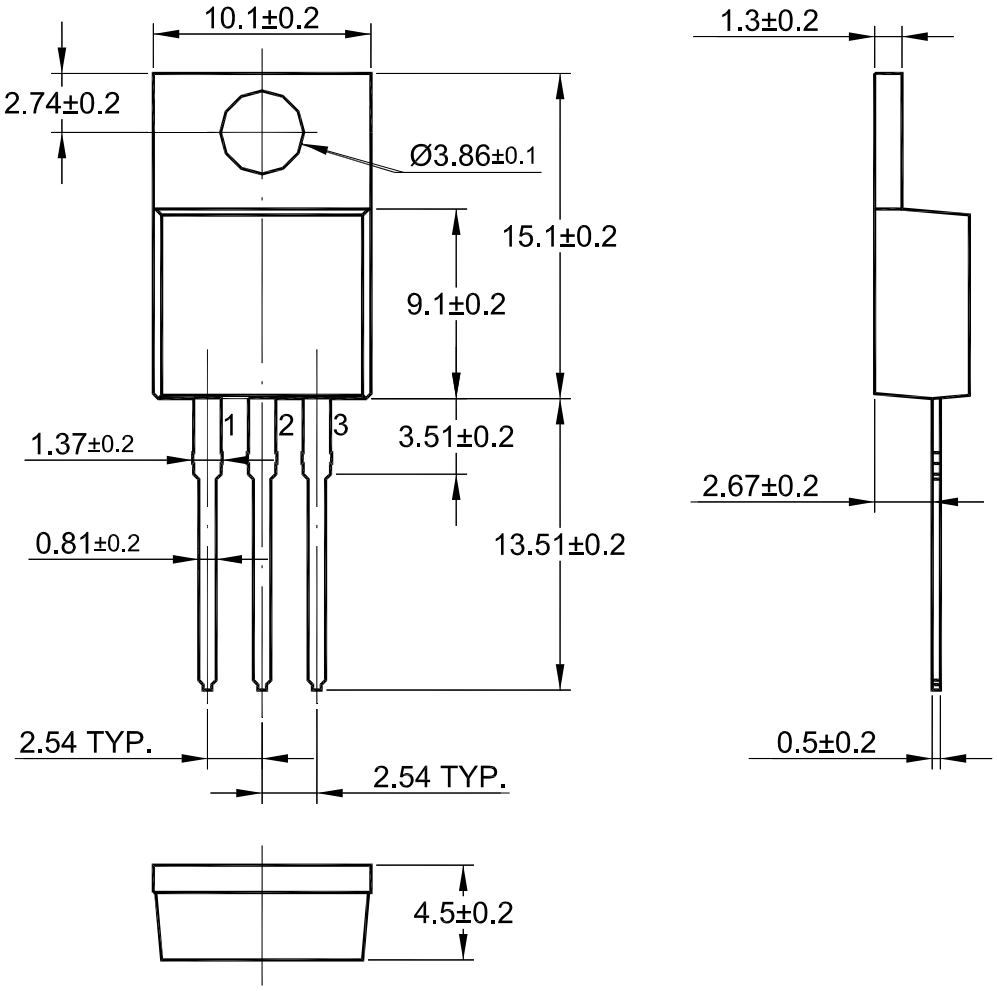
parameter: T_j



Typ. forward transconductance

$g_{fs}=f(I_D)$; $T_j=25$ °C

TO-220 Package Outline



Dimensions in mm