

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
800V	1.4Ω@10V	7A

Feature

- Planar Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested
- 100% ΔV_{DS} Tested

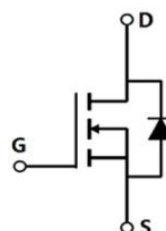
Application

- Power Switching Application

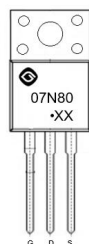
TO-220F



Schematic diagram



MARKING:



07N80 = Device Code

XX = Date Code

Solid Dot = Green Indicator

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	800	V
Gate - Source Voltage	V_{GS}	±30	V
Continuous Drain Current ¹	I_D	7	A
Pulsed Drain Current ²	I_{DM}	28	A
Single Pulsed Avalanche Current ³	I_{AS}	19	A
Single Pulsed Avalanche Energy ³	E_{AS}	90	mJ
Power Dissipation ⁵	P_D	52	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	2.4	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

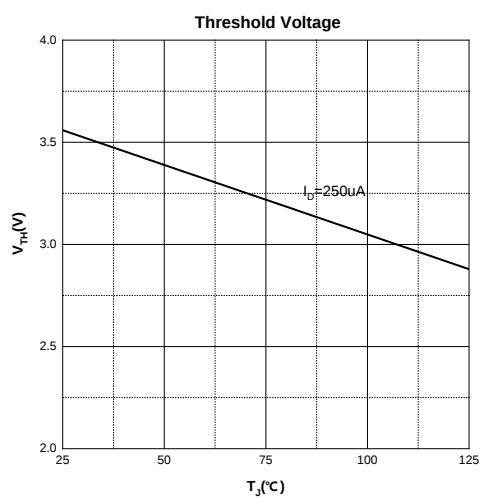
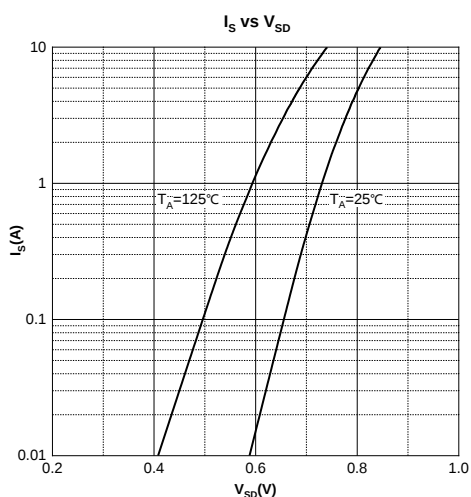
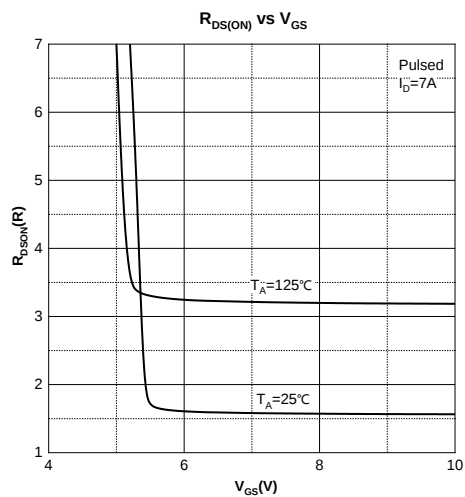
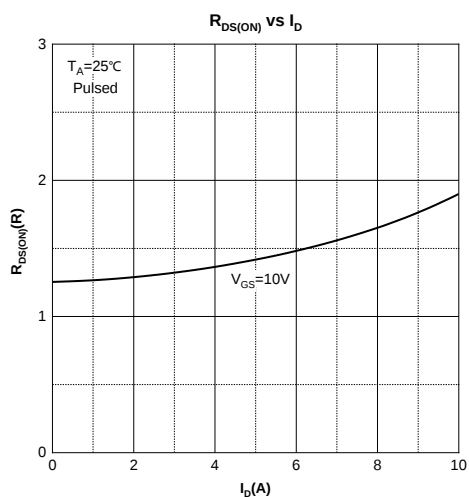
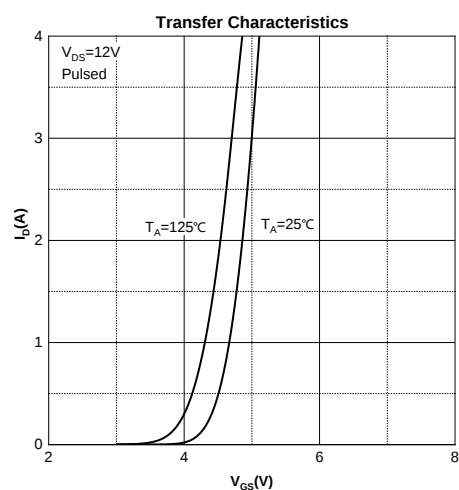
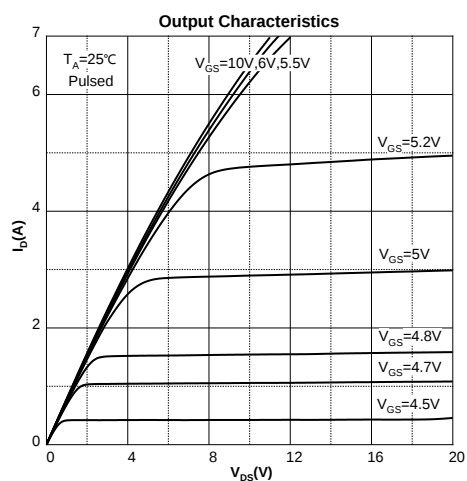
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

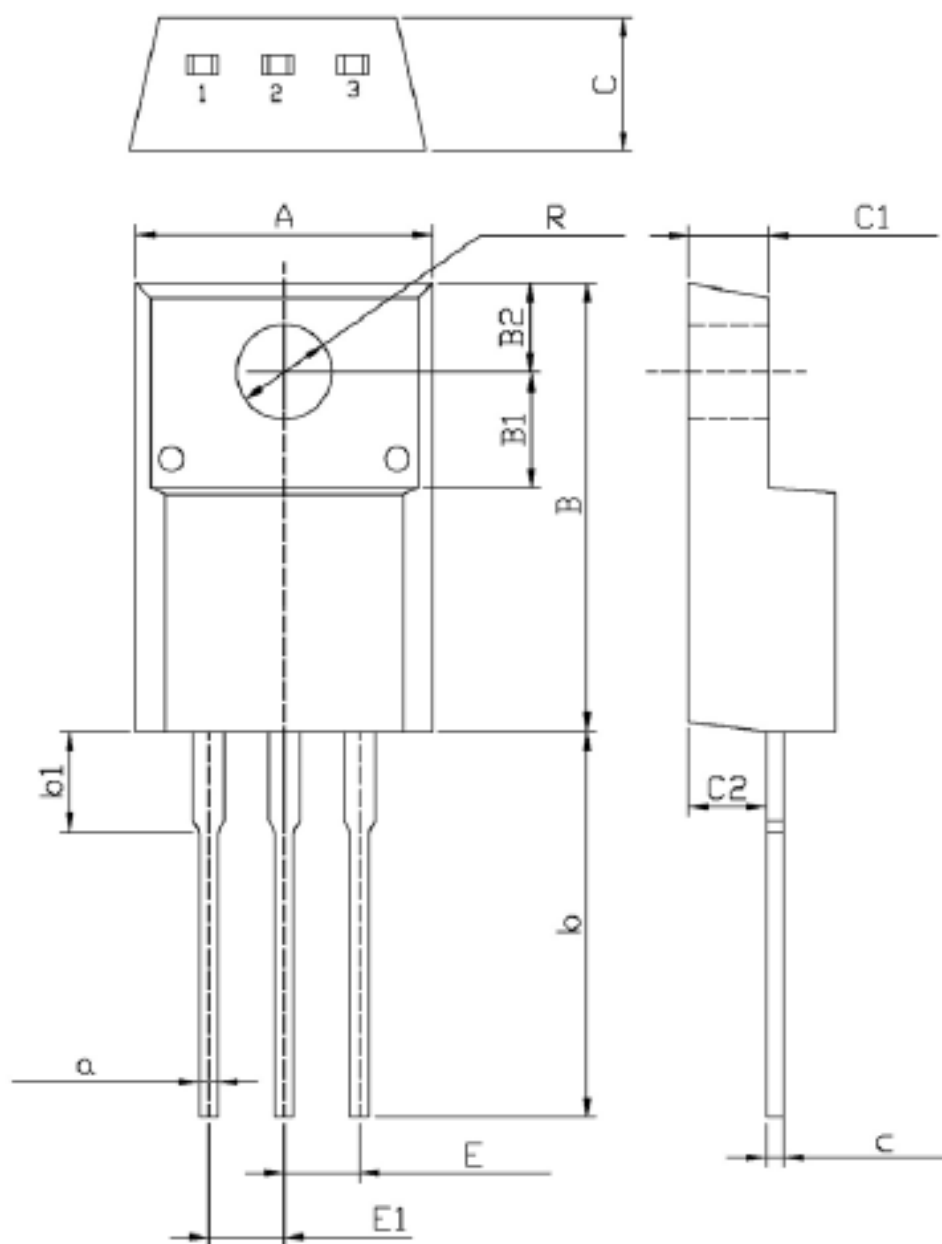
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	800			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 800V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	3	3.5	5	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 3.5A		1.4	1.8	Ω
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 400V, V _{GS} = 0V, f = 1MHz		1241		pF
Output Capacitance	C _{oss}			27		
Reverse Transfer Capacitance	C _{rss}			2.2		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		1.4		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 400V, V _{GS} = 10V, I _D = 3.5A		27		nC
Gate-source Charge	Q _{gs}			6.5		
Gate-drain Charge	Q _{gd}			9.0		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 400V, ID=6.6A,R _G = 25Ω		48		ns
Turn-on Rise Time	t _r			87		
Turn-off Delay Time	t _{d(off)}			210		
Turn-off Fall Time	t _f			96		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 7A			1.2	V

Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.EAS condition: V_{DD} = 150V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.And device mounted on a large heatsink
- 6.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics



TO-220F Package Information


Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
C	4.3	4.7	b1	2.9	3.9
A	9.7	10.3	a	0.55	0.75
B	14.7	15.3	E	2.29	2.79
B1	3.8	4.0	E1	2.29	2.79
B2	2.9	3.1	C1	2.5	2.9
R	3.0	3.4	C2	2.5	2.7
b	12.5	13.5	c	0.5	0.7