

30V N-Ch Power MOSFET

Feature

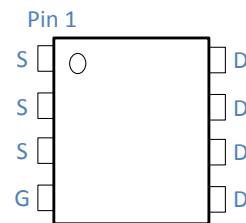
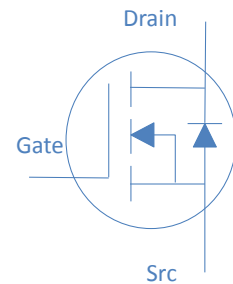
- ◇ High Speed Power Switching, Logic Level
- ◇ Enhanced Avalanche Ruggedness
- ◇ 100% UIS Tested, 100% Rg Tested
- ◇ Lead Free

V_{DS}		30	V
$R_{DS(on),typ}$	$V_{GS}=10V$	4.6	$m\Omega$
$R_{DS(on),typ}$	$V_{GS}=4.5V$	5.6	$m\Omega$
I_D		48	A

Application

- ◇ Hard Switching and High Speed Circuit
- ◇ DC/DC in Telecoms and Industrial

DFN3.3x3.3



Part Number	Package	Marking
HTM058N03P	DFN 3.3*3.3	TM058N03P

Absolute Maximum Ratings at $T_j=25^\circ\text{C}$ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	48	A
		$T_C=100^\circ\text{C}$	30	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	160	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.1\text{mH}, T_C=25^\circ\text{C}$	TBD	mJ
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	26	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 150	$^\circ\text{C}$

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	55	$^\circ\text{C/W}$
Thermal Resistance Junction-Case	$R_{\theta JC}$	4.9	$^\circ\text{C/W}$

Electrical Characteristics at $T_j=25^{\circ}\text{C}$ (unless otherwise specified)
Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.6	2.0	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=24V, T_j=25^{\circ}\text{C}$	-	-	1	μA
		$V_{GS}=0V, V_{DS}=24V, T_j=85^{\circ}\text{C}$	-	-	30	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2A$	-	4.6	5.8	m Ω
		$V_{GS}=4.5V, I_D=2A$	-	5.6	7.5	
Transconductance	g_{fs}	$V_{DS}=5V, I_D=2A$	-	TBD	-	S

Dynamic Characteristics

Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=15V, f=1\text{MHz}$	-	TBD	-	pF
Output Capacitance	C_{oss}		-	TBD	-	
Reverse Transfer Capacitance	C_{rss}		-	TBD	-	
Total Gate Charge	$Q_g(10V)$	$V_{DD}=15V, I_D=2A, V_{GS}=10V$	-	TBD	-	nC
	$Q_g(4.5V)$		-	TBD	-	
Gate to Source Charge	Q_{gs}		-	TBD	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	TBD	-	
Turn on Delay Time	$t_{d(on)}$		-	TBD	-	
Rise time	t_r	$V_{DD}=15V, I_D=2A, V_{GS}=10V, R_G=10\Omega,$	-	TBD	-	ns
Turn off Delay Time	$t_{d(off)}$		-	TBD	-	
Fall Time	t_f		-	TBD	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_F=2A$	-	0.7	1.3	V
Reverse Recovery Time	t_{rr}	$V_R=15V, I_F=2A, d_{IF/dt}=300A/\mu s$	-	TBD	-	ns
Reverse Recovery Charge	Q_{rr}		-	TBD	-	nC