



Micro Commercial Components
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MCP55H12

N-Channel Enhancement Mode Field Effect Transistor

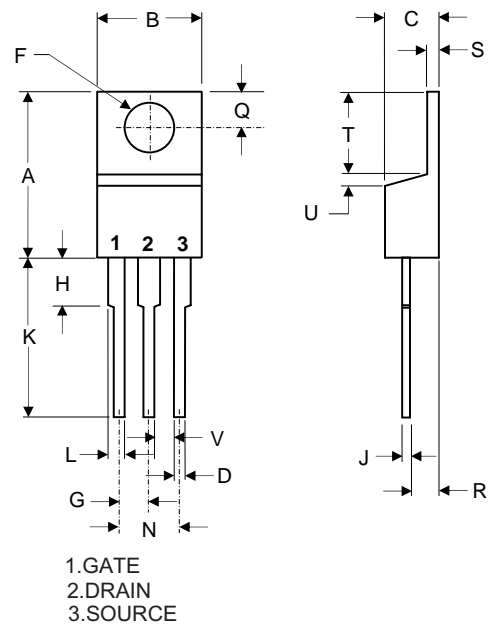
Features

- Halogen free available upon request by adding suffix "-HF"
- Pulsed Drain Current (IC), $R_{DS(ON)}$
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

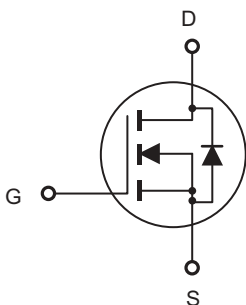
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	51	V
I_D	Drain Current-Continuous	12€	A
I_{DM}	Pulsed Drain Current (IC)	4€	A
V_{GSS}	Gate-source Voltage	±10	V
E_{AS}	Single Pulsed Avalanche Energy (note1)	1100	mJ
R_{JA}	Thermal Resistance Junction to Ambient	62.5	°C/W
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

TO-220



Internal Block Diagram



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.134	.161	3.40	4.09	∅
G	.190	.110	2.29	2.79	
H	---	.250	---	6.35	
J	.012	.025	0.30	0.64	
K	.500	.580	12.70	14.73	
L	.045	.060	1.14	1.52	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.43	
R	.080	.115	2.04	2.92	
S	.045	.055	1.14	1.39	
T	.230	.270	5.84	6.86	
U	---	.050	---	1.27	
V	.045	---	1.15	---	

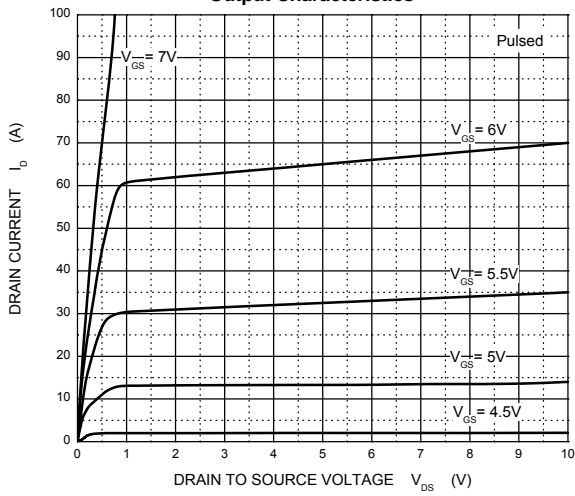
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	55	65		V
Zero gate voltage drain current	I _{DSS}	V _{DS} =55V, V _{GS} =0V			1	μA
		V _{DS} =0.8xRatedV _{(BR)DSS} ,V _{GS} =0V, T _J =125°C			100	
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =± 20V			± 100	nA
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =40A		4.1	5.5	mΩ
Forward transconductance	g _{fs}	V _{DS} =25V, I _D =40A	50			S
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f =1MHz		4900		pF
Output capacitance	C _{oss}			470		
Reverse transfer capacitance	C _{rss}			460		
Switching characteristics (note 2,3)						
Turn-on delay time	t _{d(on)}	V _{DD} =30V, I _D =2.0A,V _{GS} =10V, R _{GEN} =2.5Ω		20		ns
Turn-on rise time	t _r			19		
Turn-off delay time	t _{d(off)}			70		
Turn-off fall time	t _f			30		
Total gate charge	Q _G	V _{DS} =30V ,V _{GS} =10V,I _D =30A,		125		nC
Gate to source charge	Q _{GS}			24		
Gate to drain "miller" charge	Q _{GD}			49		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note2)	V _{SD}	V _{GS} = 0V, I _S =40A			1.2	V
Continuous drain-source diode forward current(note4)	I _S				120	A
Pulsed drain-source diode forward current	I _{SM}				420	A

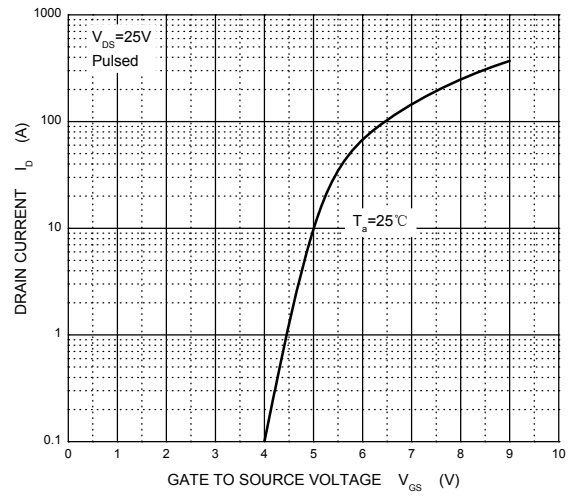
Notes :

- 0.5mH, V_{DD}=30V,V_{GS}=10V, R_G=25Ω,Starting T_J=25°C.
- Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
- Guaranteed by design, not subject to production
- Surface mounted on FR4 board, t≤10s

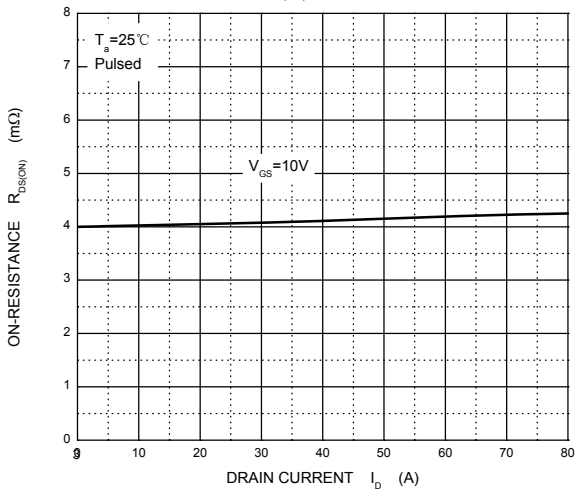
Output Characteristics



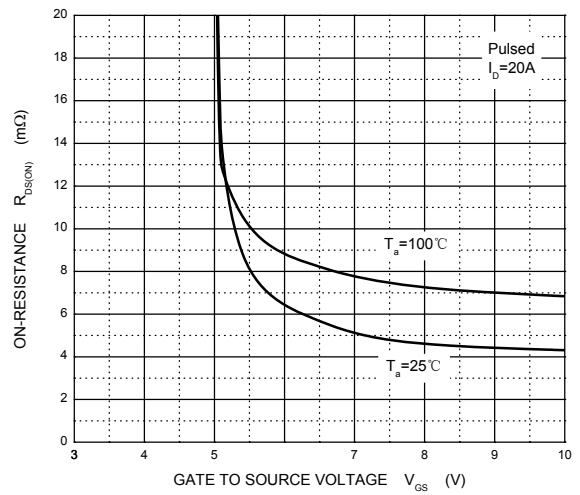
Transfer Characteristics



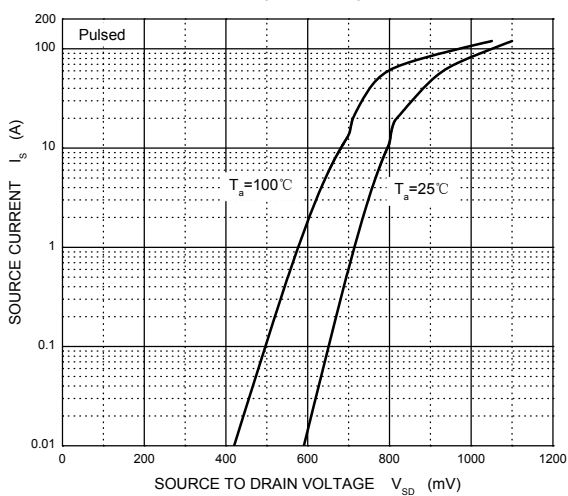
$R_{DS(ON)}$ — I_D



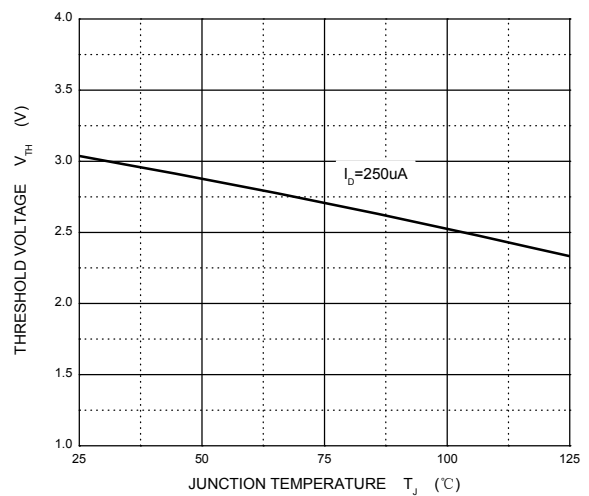
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage





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Ordering Information :

Device	Packing
Part Number-BP	Bulk; 1Kpcs/Box

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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