



Micro Commercial Components



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MCU20P10

Features

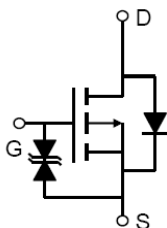
- Advanced trench process technology
- High density cell design for ultra low On-Resistance
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Reliable and rugged

P-Channel Enhancement Mode Field Effect Transistor

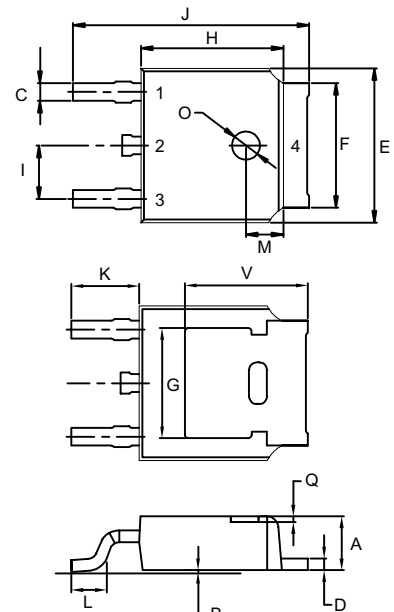
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	-100	V
I_D	Drain Current-Continuous	-20	A
I_D	Drain Current-Continuous($T_C=100^\circ\text{C}$)	-12	A
V_{GS}	Gate-source Voltage	± 20	V
I_{DM}	Pulsed Drain Current	-72	A
$R_{\theta JC}$	Thermal Resistance Junction to Case(Note1)	1.79	$^\circ\text{C}/\text{W}$
T_J	Operating Junction Temperature	-55 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$
P_D	Maximum Power Dissipation	70	W

Internal Block Diagram



DPAK



- 1.GATE
2.DRAIN
3.SOURCE

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.208REF		5.30REF		

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-100V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±20	μA
On Characteristics (Note 2)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.9	-3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-16A	-	85	100	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-50V, I _D =-10A	5	-	-	S
Dynamic Characteristics (Note 3)						
Input Capacitance	C _{ISS}	V _{DS} =-25V, V _{GS} =0V, F=1.0MHz	-	2100	-	PF
Output Capacitance	C _{OSS}		-	590	-	PF
Reverse Transfer Capacitance	C _{RSS}		-	140	-	PF
Switching Characteristics (Note 3)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-50V, I _D =-16A V _{GS} =-10V, R _{GEN} =9.1Ω	-	16	-	nS
Turn-on Rise Time	t _r		-	73	-	nS
Turn-Off Delay Time	t _{d(off)}		-	34	-	nS
Turn-Off Fall Time	t _f		-	57	-	nS
Total Gate Charge	Q _g	V _{DS} =-80V, I _D =-16A, V _{GS} =-10V	-	61	-	nC
Gate-Source Charge	Q _{gs}		-	14	-	nC
Gate-Drain Charge	Q _{gd}		-	29	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 2)	V _{SD}	V _{GS} =0V, I _S =-10A	-	-	-1.2	V
Diode Forward Current (Note 1)	I _S	-	-	-	-18	A
Reverse Recovery Time	t _{rr}	TJ = 25°C, IF =-16A di/dt = 100A/μs(Note2)	-	88.3	-	nS
Reverse Recovery Charge	Q _{rr}		-	65.9	-	nC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Surface Mounted on FR4 Board, t ≤ 10 sec.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
3. Guaranteed by design, not subject to production

Typical Characteristics

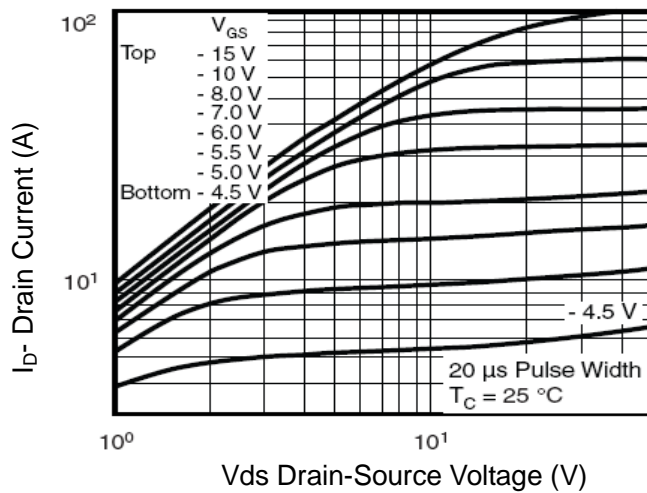


Figure 1 Output Characteristics

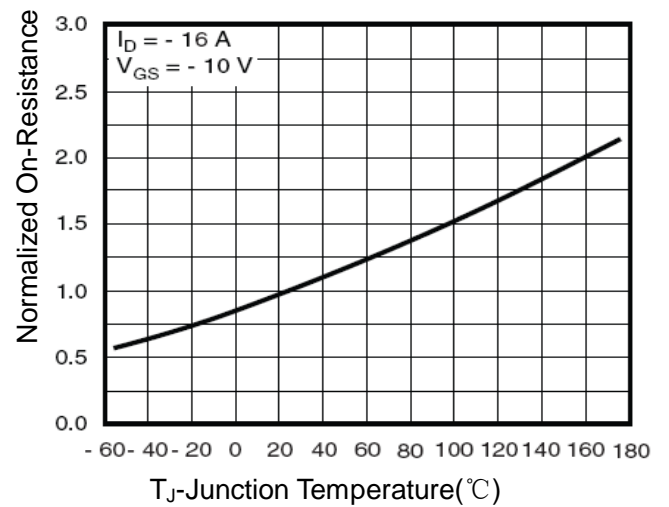


Figure 4 Rdson-Junction Temperature

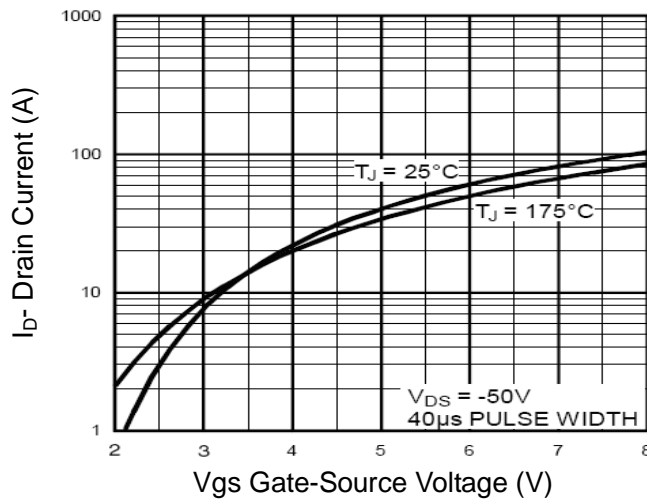


Figure 2 Transfer Characteristics

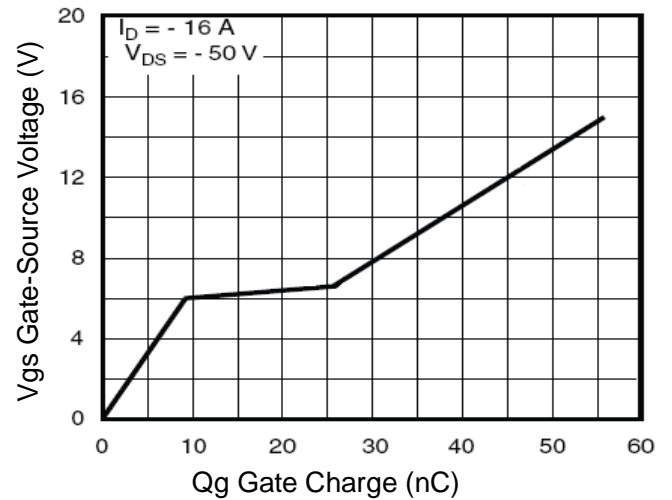


Figure 5 Gate Charge

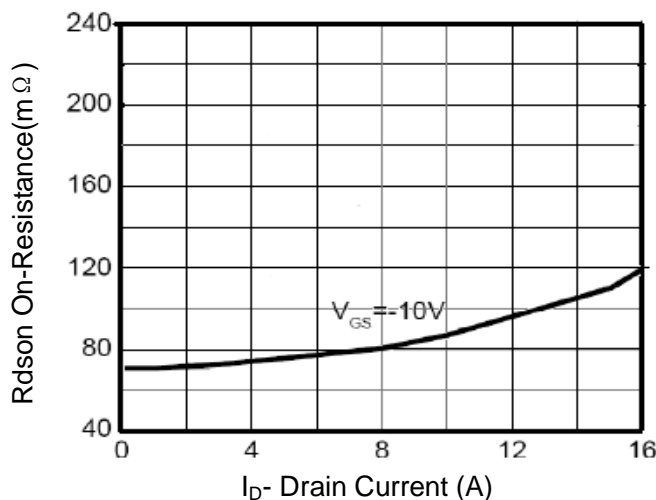


Figure 3 Rdson- Drain Current

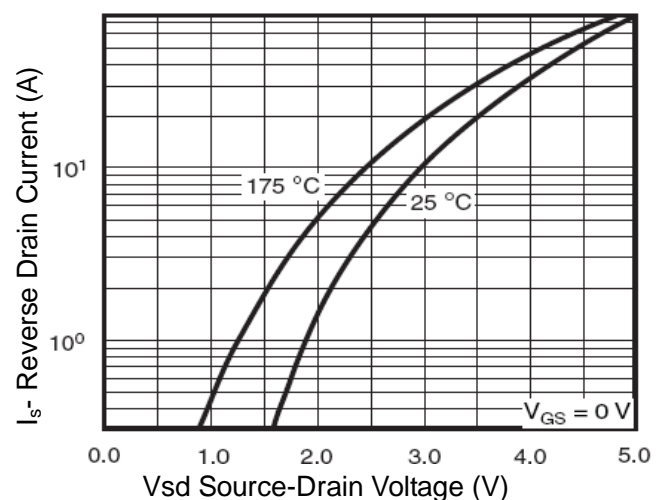


Figure 6 Source- Drain Diode Forward



Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel:2.5Kpcs/Reel

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

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