Micro Commercial Components

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MCU50N03

N-Channel
Enhancement Mode
Field Effect Transistor

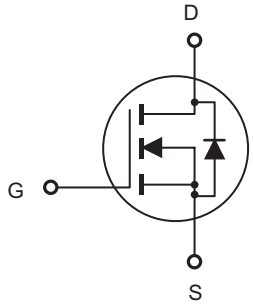
Features

- High density cell design for ultra low Rdson
- Fully characterized Avalanche voltage and current
- Halogen free available upon request by adding suffix "-HF"
- Excellent package for good heat dissipation
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

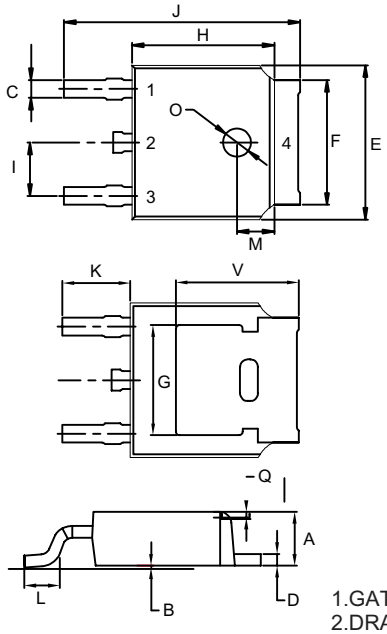
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	30	V
I_D	Drain Current-Continuous Tc=25°C	50	A
	Tc=100°C	35	
E_{AS}	Single Pulsed Avalanche Energy(Note 5)	70	mJ
V_{GS}	Gate-source Voltage	±20	V
I_{DM}	Pulsed Drain Current(Note 1)	140	A
$R_{\theta JC}$	Thermal Resistance Junction to Case(Note 2)	2.5	℃/W
P_D	Power Dissipation Debating factor	60	W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

Internal Block Diagram



DPAK



1.GATE
2.DRAIN
3.SOURCE
4.DRAIN

DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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	
	0.211		5.35		

Electrical Characteristics T_C=25℃ unless otherwise specified

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30	33	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics(Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1.0	1.5	3.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=25A	-	5.9	6.5	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=20A	15	-	-	S
Dynamic Characteristics(Note4)						
Input Capacitance	C_{lss}	V_{DS}=15V,V_{GS}=0V, F=1.0MHz	-	2000	-	PF
Output Capacitance	C_{oss}		-	280	-	PF
Reverse Transfer Capacitance	C_{rss}		-	160	-	PF
Switching Characteristics(Note4)						
Total Gate Charge	Q_g	V_{DS}=10V,I_D=25A , V_{GS}=10V	-	23	-	nC
Gate-Source Charge	Q_{gs}		-	7.0	-	nC
Gate-Drain Charge	Q_{gd}		-	4.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=25A	-	0.85	1.2	V
Diode Forward Current	I_S		-	-	40	A
Reverse Recovery Time	t_{rr}	TJ = 25℃, IF =40A di/dt = 100A/μs	-	22	35	nS
Reverse Recovery Charge	Qrr		-	12	20	nC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating:Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤10 sec.
3. Pulse Test:Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.
5. EAS condition: Tj=25℃,VDD=15V,VG=10V,L=1mH,Rg=25Ω.

Typical Characteristics

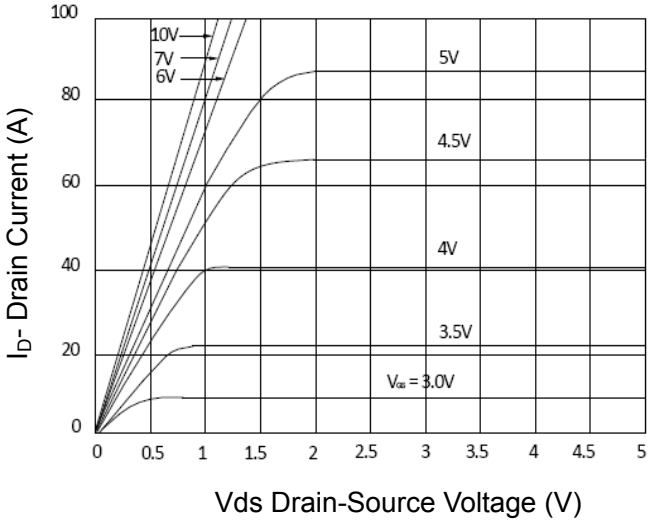


Figure 1 Output Characteristics

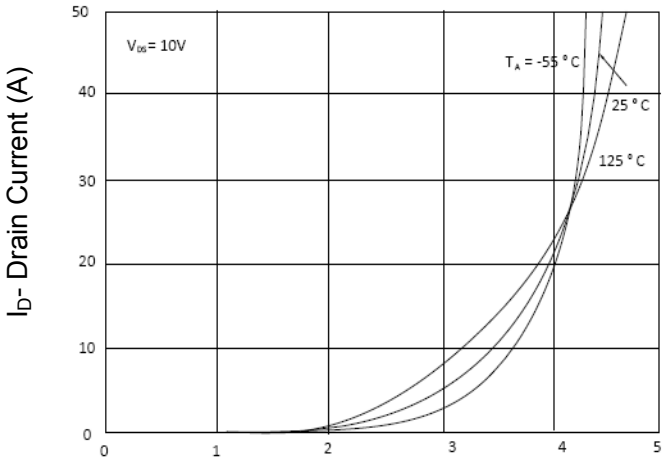


Figure 2 Transfer Characteristics

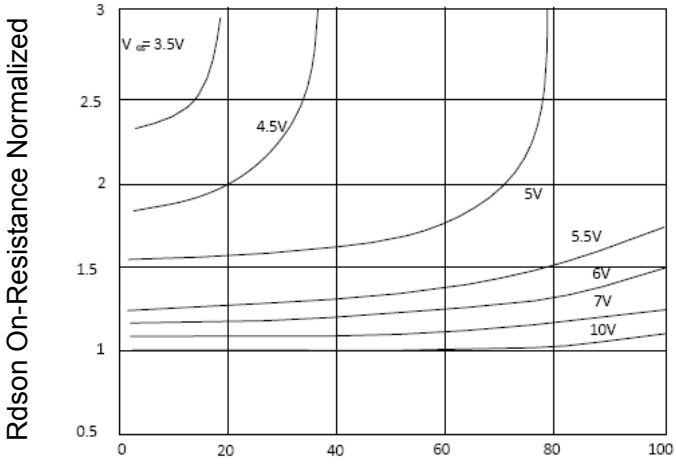


Figure 3 Rdson- Drain Current

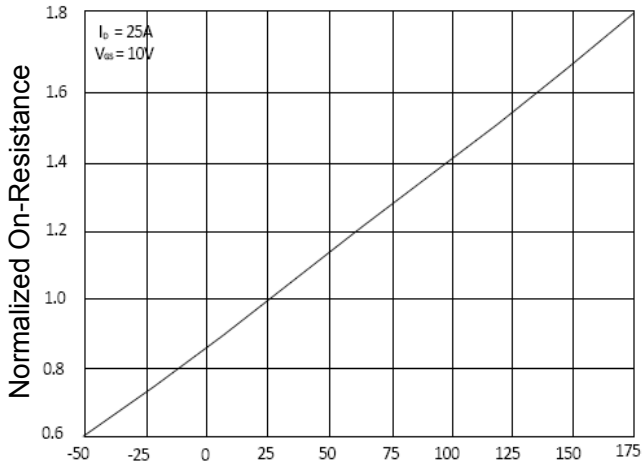


Figure 4 Rdson-JunctionTemperature

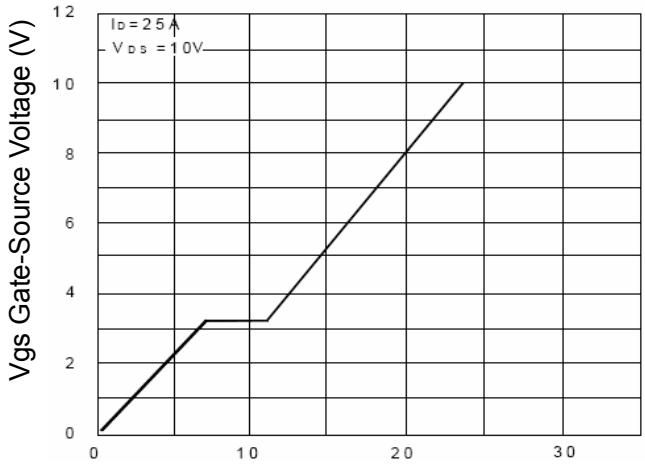


Figure 5 Gate Charge

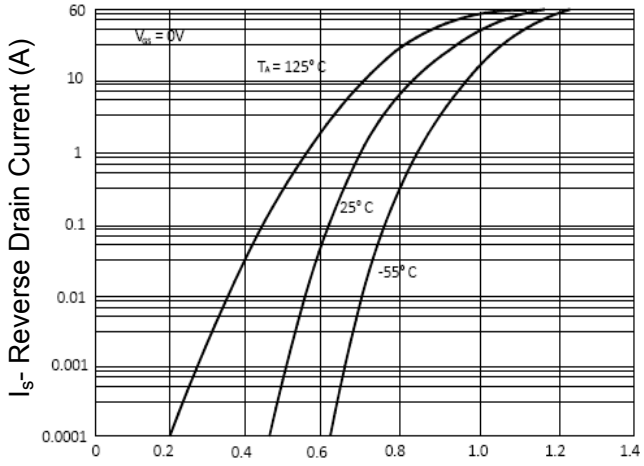


Figure 6 Source- Drain Diode Forward

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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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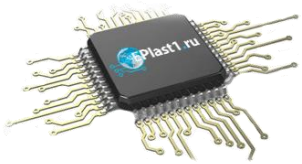
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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