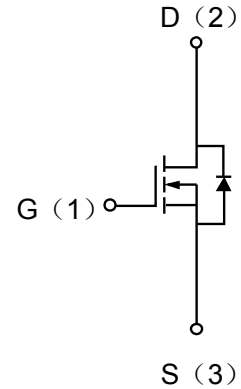


Description

The enhancement mode MOS is extremely high density cell and low on-resistance.

MOSFET Product Summary		
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A)
600	1.44@ V _{GS} =10V	5.0



Absolute maximum rating@25°C

Rating	Symbol	Value	Units	
Drain-Source Voltage	V _{DS}	600	V	
Gate-Source Voltage	V _{GS}	±30	V	
Continuous Drain Current	T _C =25°C	I _D	3.2 A	
	T _C =100°C	I _D	5.0 A	
Pulsed Drain Current	I _{DM}	16	A	
Total Power Dissipation	T _A =25°C	P _D	132 W	
	Derate above 25°C	P _D	1.05 W / °C	
Junction and Storage Temperature Range	T _J , T _{STG}	-50 to 150	°C	
Maximum lead temperature for soldering purpose, 1/8" from case for 5 seconds	T _L	300	°C	
Thermal Characteristics				
Parameter	Symbol	Typical	Maximum	Units
Maximum Junction-to-Ambient	R _{θJA}	54	65	°C/W
Maximum Case-to-Sink	R _{θCS}	-	0.5	°C/W
Maximum Junction-to-Case	R _{θJC}	0.76	0.95	°C/W

Electrical characteristics per line @ 25 °C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 250\mu A, V_{GS} = 0V$	600		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 2.5A$	-	1.44	1.8	Ω
Forward Transconductance	g_{FS}	$V_{DS} = 40V, I_D = 2.5A$		7.7		S
Diode Forward Voltage	V_{SD}	$I_S = 1A, V_{GS} = 0V$		0.76	1	V
Maximum Body-Diode Continuous Current	I_S				5	A
Maximum Body-Diode Pulse Current	I_{SM}				16	A
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS} = 0V, V_{DS} = 25V,$ $f = 1MHz$	466	583	700	pF
Output Capacitance	C_{OSS}		46	58.4	70	pF
Reverse Transfer Capacitance	C_{RSS}		4.2	5.3	6.5	pF
SWITCHING PARAMETERS						
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 300V, V_{GS} = 10V,$ $R_G = 25\Omega,$ $I_D = 5A$	-	21	25	ns
Turn-Off Delay Time	$t_{d(off)}$		-	35	45	ns
Turn-On Rise Time	t_r			44	55	ns
Turn-Off Fall Time	t_f			37	45	ns
Total Gate Charge	Q_g	$V_{GS} = 10V,$ $V_{DS} = 480V,$ $I_D = 5A$		16.8	20	nC
Gate Source Charge	Q_{gs}			3.1	4	nC
Gate Drain Charge	Q_{gd}			8.5	11	nC
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 5A, di/dt = 100A/\mu s, V_{DS} = 100V$		208	250	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F = 5A, di/dt = 100A/\mu s, V_{DS} = 100V$		2	2.4	μC

Typical Characteristics

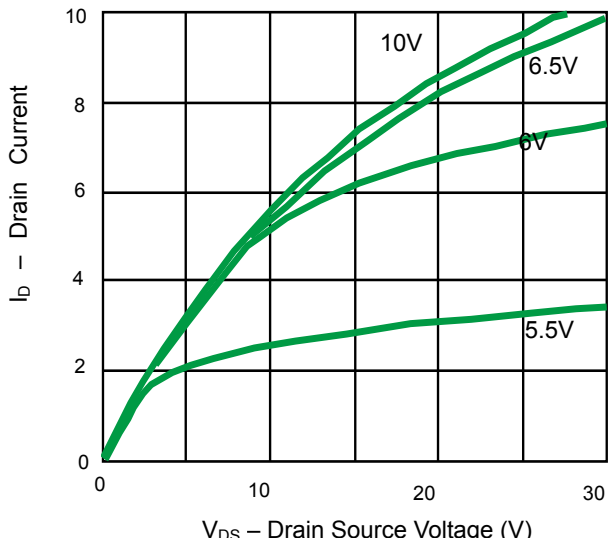


Fig 1. On-Region Characteristics

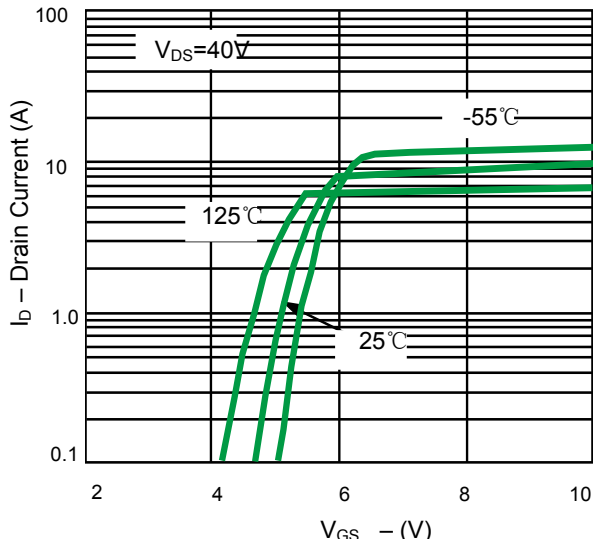


Fig 2. Transfer Characteristics

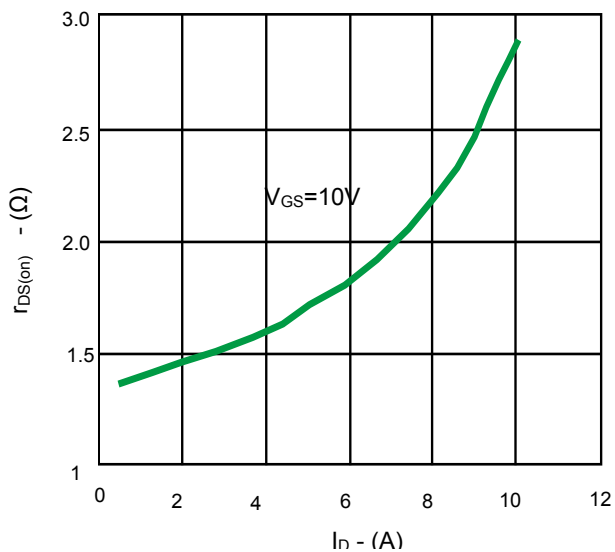


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

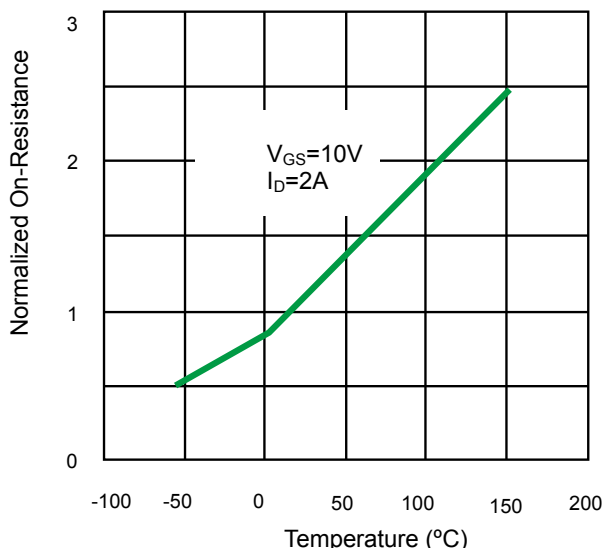
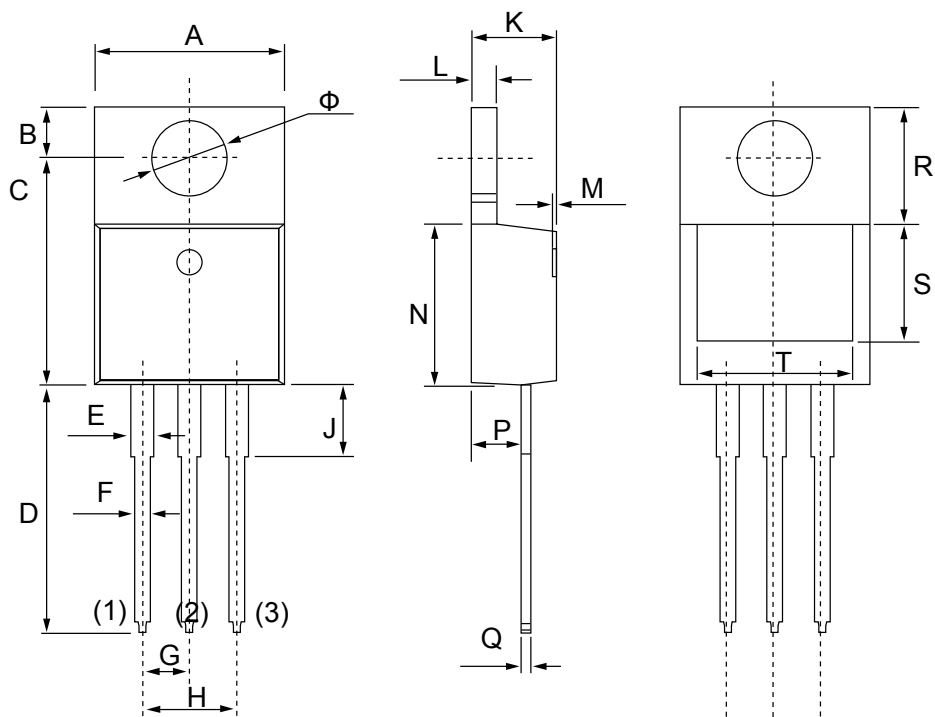


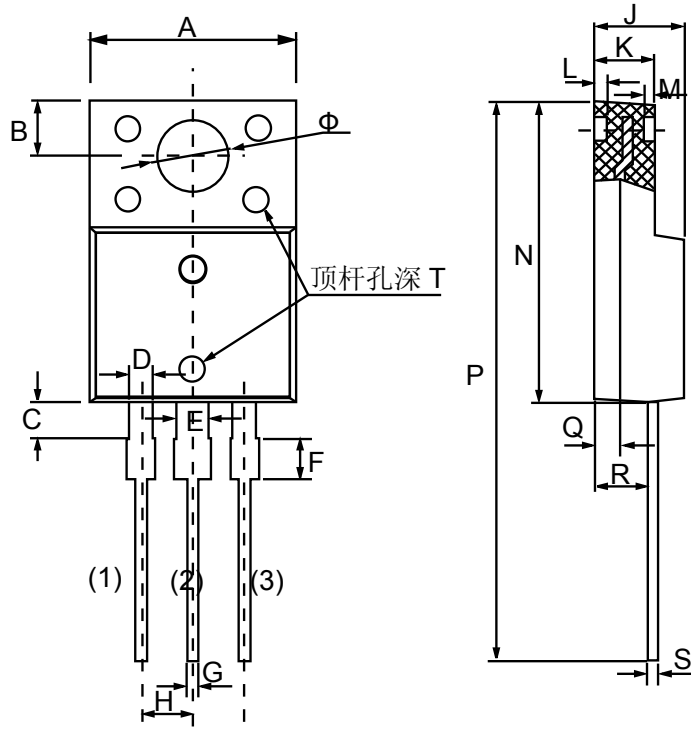
Fig 4. On-Resistance vs. Junction Temperature

Product dimension(PNMTO600V5)(TO-220)




Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	10.010	10.350	0.394	0.407
B	2.590	2.890	0.102	0.114
C	12.060	12.460	0.475	0.491
D	13.400	13.800	0.528	0.543
E	1.170	1.370	0.046	0.054
F	0.710	0.910	0.028	0.036
G	2.540 TYP.		0.100 TYP.	
H	4.980	5.180	0.196	0.204
J	3.560	3.960	0.140	0.156
K	4.470	4.670	0.176	0.184
L	1.200	1.400	0.047	0.055
M	0.000	0.300	0.000	0.012
N	8.500	8.900	0.335	0.350
P	2.520	2.820	0.099	0.111
Q	0.380	0.520	0.014	0.020
R	6.600 REF.		0.260 REF.	
S	6.060 REF.		0.239 REF.	
T	8.440 REF.		0.332 REF.	
Φ	3.735	3.935	0.147	0.155

Product dimension (PNMTOF600V5)(TO-220F)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	9.960	10.360	0.392	0.408
B	2.700 REF		0.106 REF	
C	1.700	1.900	0.067	0.075
D	1.100	1.350	0.043	0.053
E	1.500	1.750	0.059	0.069
F	1.900	2.100	0.075	0.083
G	0.500	0.750	0.020	0.030
H	2.540 TYP		0.100 TYP	
J	4.300	4.700	0.169	0.185
K	2.800	3.200	0.110	0.126
L	0.800 REF		0.031 REF	
M	0.500 REF		0.020 REF	
N	14.800	15.200	0.583	0.598
P	28.000	28.400	1.102	1.118
Q	1.300 REF		0.051 REF	
R	2.500	2.900	0.098	0.114
S	0.500	0.750	0.020	0.030
T	0.000	0.300	0.000	0.012
Φ	3.500 REF		0.138 REF	


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