30V N-Ch Power MOSFET

V_{DS}		30	V
$R_{DS(on),typ}$	V_{GS}=10V	9.7	m
$I_{D\ (Sillicon\ Limited)}$		18.5	A

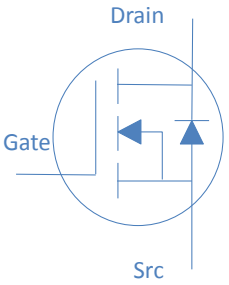
Feature

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

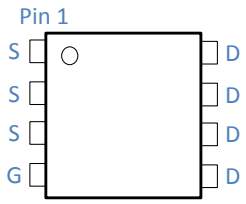
Application

- Hard Switching and High Speed Circuit
- DC/DC in Telecoms and Inductrial

DFN3x3



Part Number	Package	Marking
HTM120N03	DFN3*3	TM120N03



Absolute Maximum Ratings at T_j

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C	18.5	A
		T_C	13.5	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	74	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.1mH, T_C	7.2	mJ
Power Dissipation	P_D	T_C	3	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to150	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	R_{JA}	50	
Thermal Resistance Junction-Case	R_{JC}	6	

Electrical Characteristics at T_j

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250 A	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 A	1	1.7	3	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=24V, T_j	-	-	1	A
		V_{GS}=0V, V_{DS}=20V, T_j	-	-	25	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=12A	-	9.7	11.5	m
		V_{GS}=4.5V, I_D=7A	-	13	16	
Transconductance	g	V_{DS}=5V, I_D=12A	-	15	-	S
Gate Resistance	R_G	V_{GS}=15mV, V_{DS}	-	2.0	-	

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}	-	762	-	pF
Output Capacitance	C_{oss}		-	150	-	
	C_{rss}		-	130	-	
Total Gate Charge	Q_g(10V)	V_{DD}=15V, I_D=12A, V_{GS}=10V	-	12.0	-	nC
	Q_g(4.5V)			4.5		
Gate to Source Charge	Q_{gs}		-	1.2	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3.7	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=15V, I_D=1A, V_{GS}=10V, R_G=2.7 ,	-	8	-	ns
Rise time	t_r		-	6	-	
	t		-	18	-	
Fall Time	t		-	3	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=2.5A	-		1.2	V
Reverse Recovery Time	t_{rr}	I_F=2.5A, dI_F s	-	18	-	ns
Reverse Recovery Charge	Q_{rr}		-	10	-	nC

Fig 1. Typical Output Characteristics

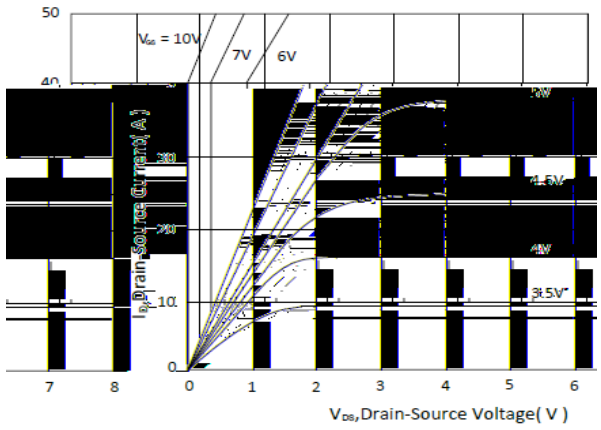


Figure 2. On-Resistance vs. Gate-Source Voltage

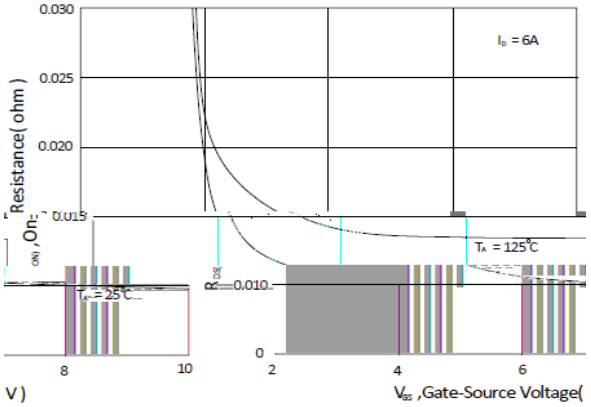
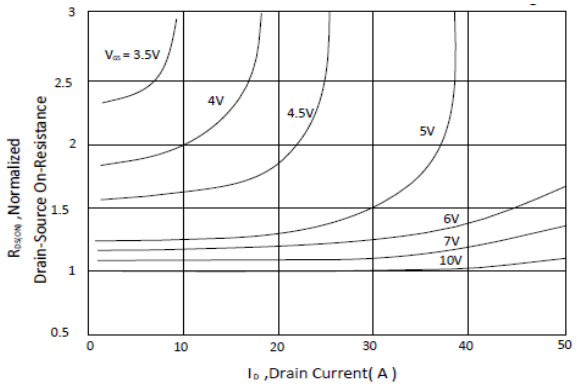


Figure 3. On-Resistance vs. Drain Current and Gate Voltage



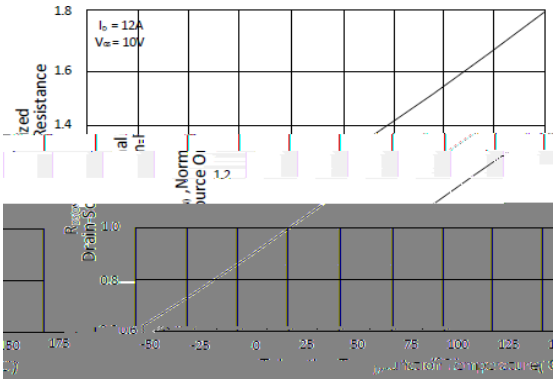
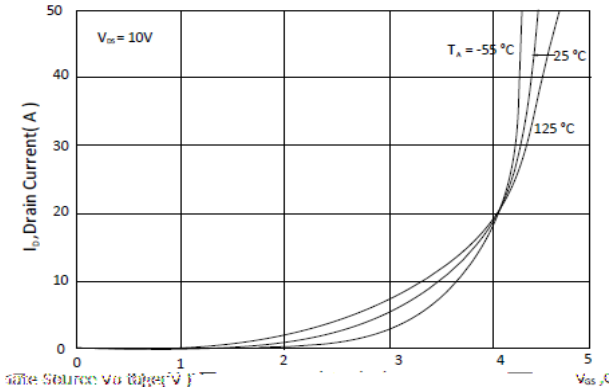


Figure 6. Typical Source-Drain Diode Forward Voltage



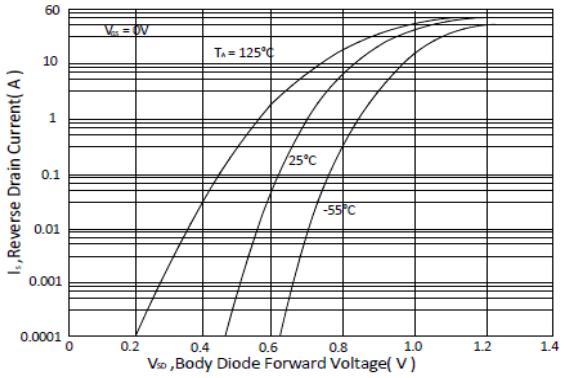
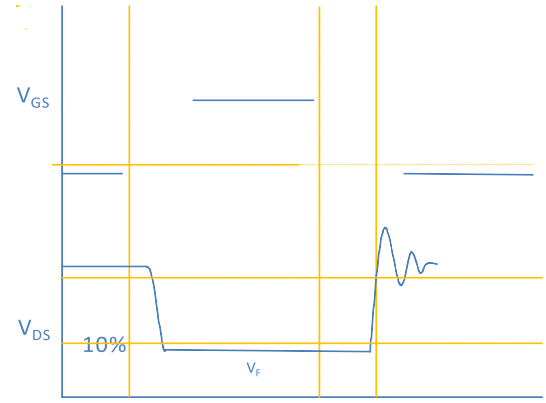


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage	Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

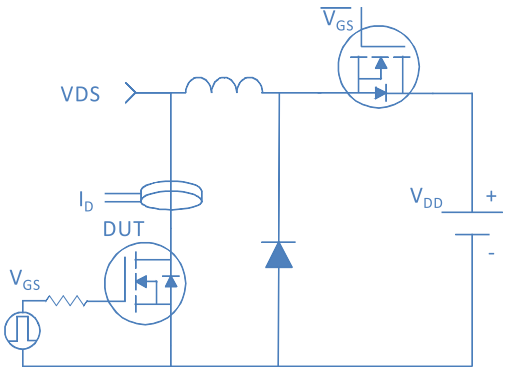
	Figure 10. Single Pulse Maximum Power Dissipation

Inductive switching Test



Gate Charge Test

Uclamped Inductive Switching (UIS) Test



Diode Recovery Test

Package Outline

DFN3*3, 8leads