HTJ300N02 P-1

20V N-Ch Power MOSFET

V_{DS}		20	V
$R_{DS(on),typ}$	V_{GS}=10V	26	mΩ
$I_{D\ (Sillicon\ Limited)}$		5	A

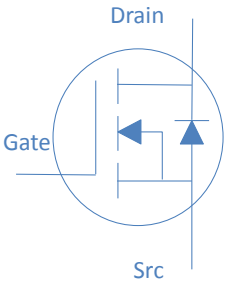
Feature

- ◇ 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

SOT-23



Part Number	Package	Marking
HTJ300N02	SOT23	11

Absolute Maximum Ratings at T_j=25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_A=25℃	5	A
		T_A=100℃	3.6	
Drain to Source Voltage	V_{DS}	-	20	V
Gate to Source Voltage	V_{GS}	-	±12	V
Pulsed Drain Current	I_{DM}	-	20	A
Power Dissipation	P_D	T_A=25℃	1.25	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to150	℃

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	100	℃/W
Thermal Resistance Junction-Lead	$R_{\theta JL}$	55	℃/W

Electrical Characteristics at T_j=25℃ (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	0.45	0.75	1.2	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=16V, T_j=25℃	-	-	1	μA
		V_{GS}=0V, V_{DS}=16V, T_j=125℃	-	-	10	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=5A	-	26	30	mΩ
		V_{GS}=2.5V, I_D=4A	-	45	51	
		V_{GS}=1.8V, I_D=2A	-	56	80	
Transconductance	g_{fs}	V_{DS}=5V, I_D=5A	-	7	-	S

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz	-	280	-	pF
Output Capacitance	C_{oss}		-	47	-	
Reverse Transfer Capacitance	C_{rss}		-	38	-	
Total Gate Charge	Q_g	V_{DD}=10V, I_D=5A, V_{GS}=4.5V	-	6.2	-	nC
Gate to Source Charge	Q_{gs}		-	0.9	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	2.1	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=10V, I_D=1A, V_{GS}=4.5V, R_G=6Ω,	-	12	-	ns
Rise time	t_r		-	15	-	
Turn off Delay Time	$t_{d(off)}$		-	30	-	
Fall Time	t_f		-	13	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=3A	-		1.2	V

Fig 1. Typical Output Characteristics

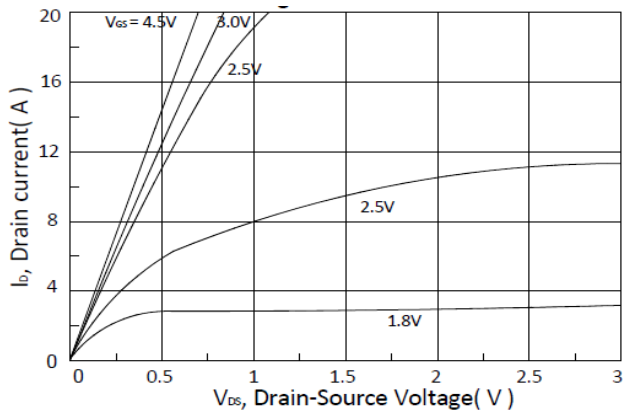


Figure 2. On-Resistance vs. Gate-Source Voltage

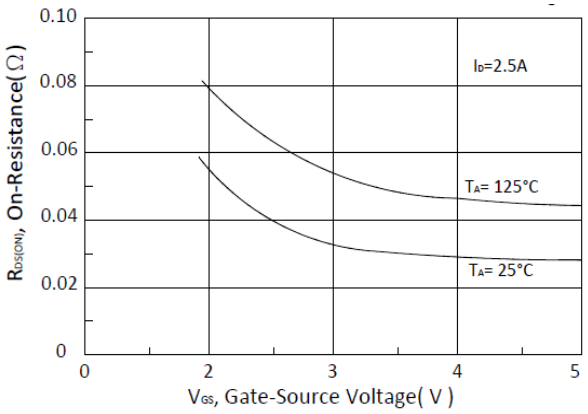


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

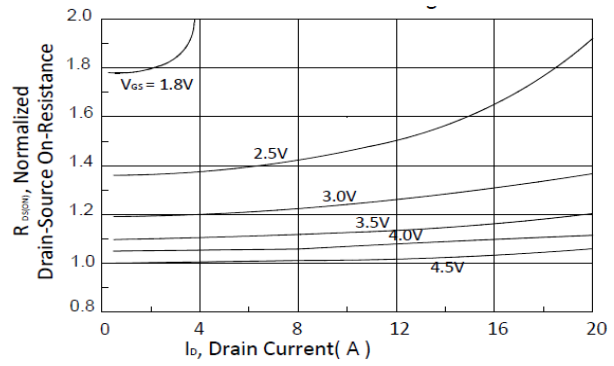


Figure 4. Normalized On-Resistance vs. Junction Temperature

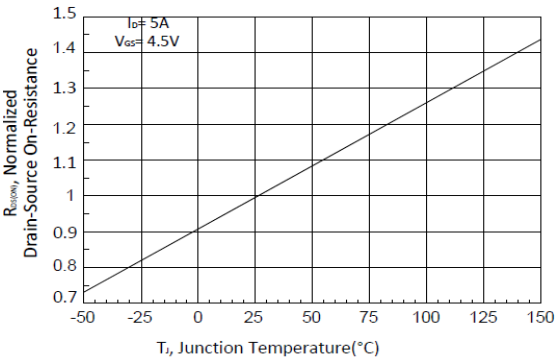


Figure 5. Typical Transfer Characteristics

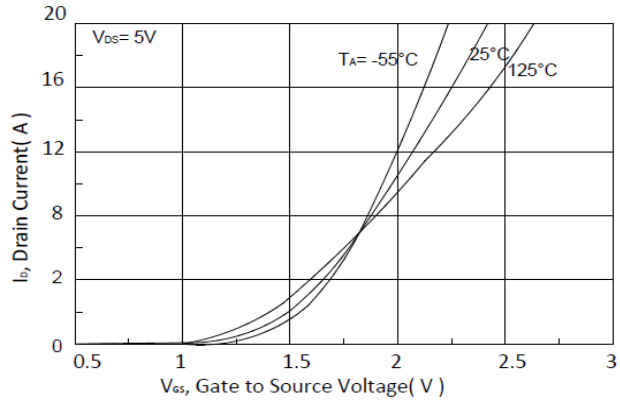


Figure 6. Typical Source-Drain Diode Forward Voltage

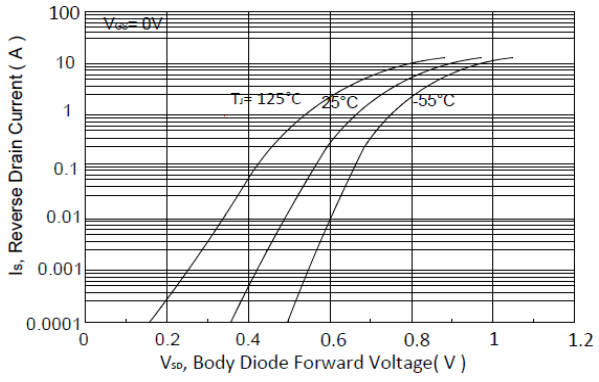


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

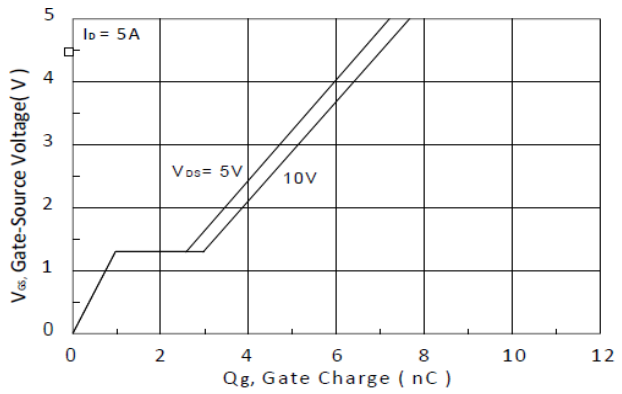


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

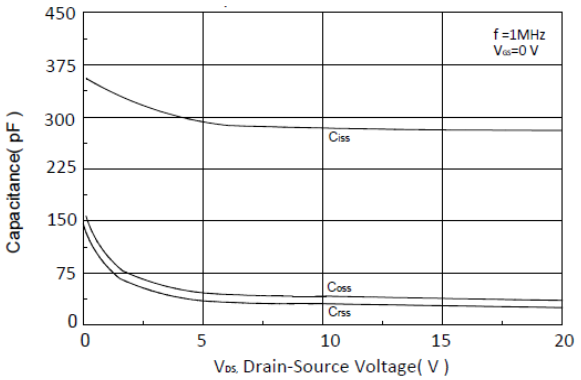


Figure 9. Maximum Safe Operating Area

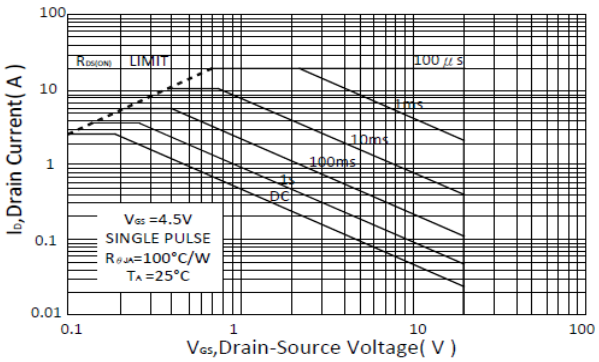


Figure 10. Single Pulse Maximum Power Dissipation

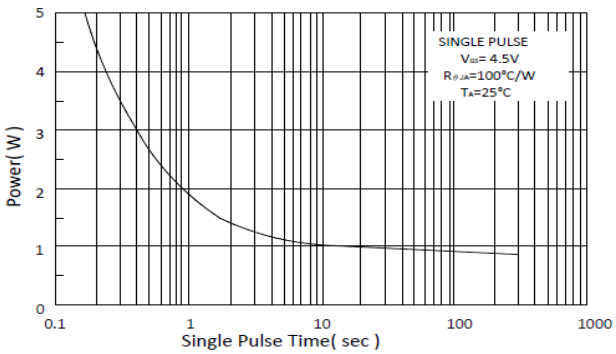
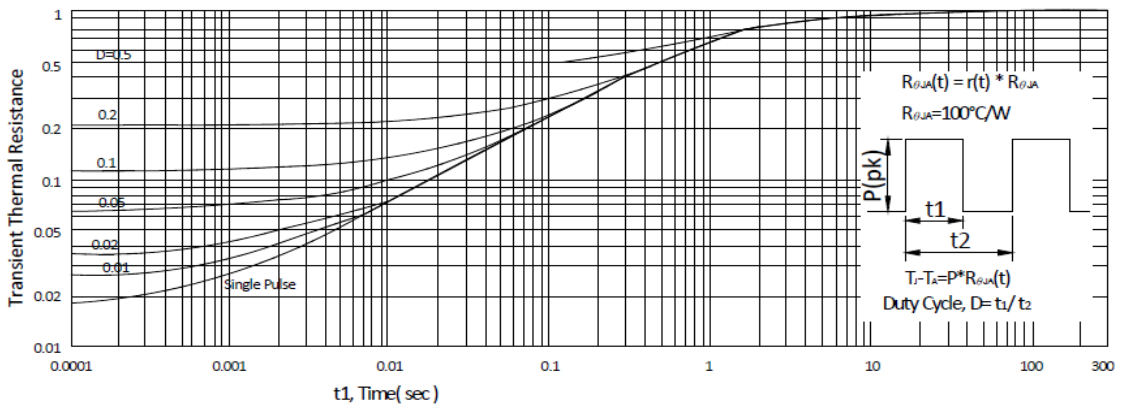
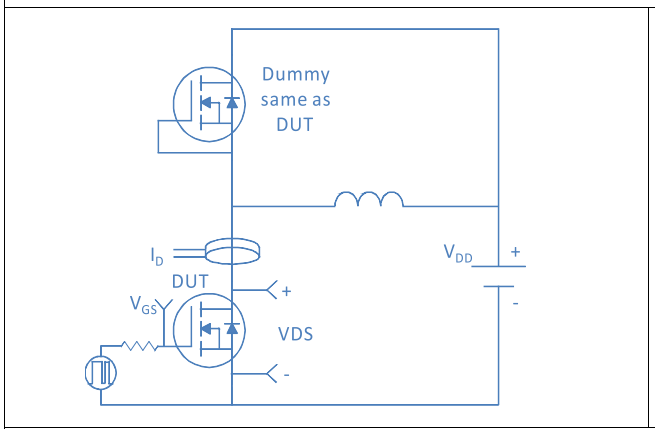
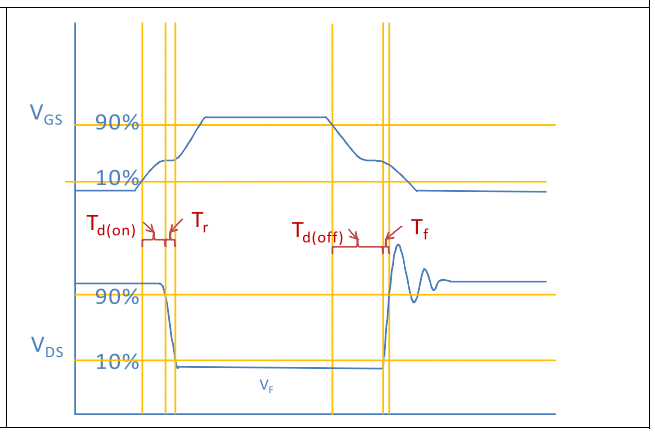


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient

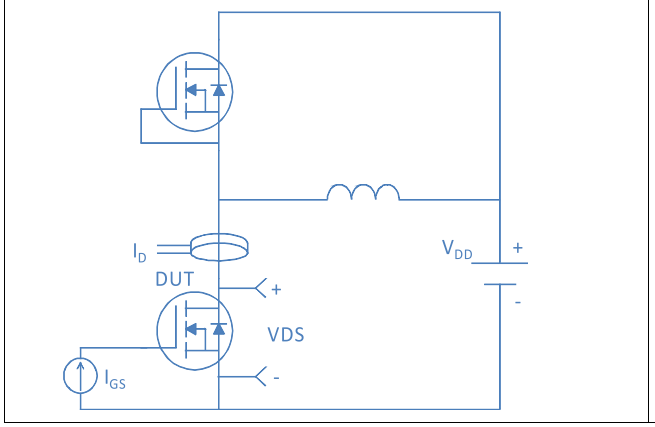


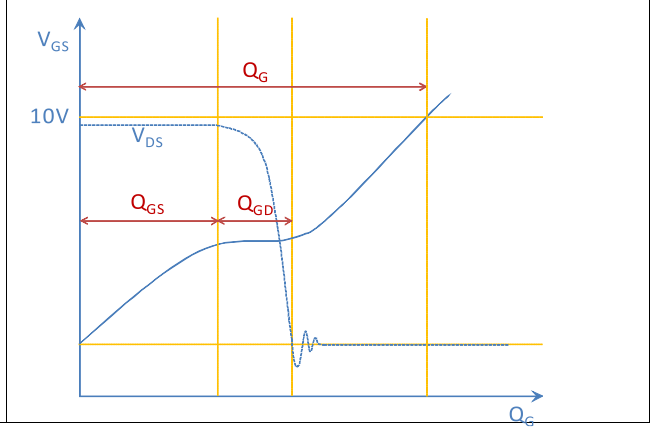
Inductive switching Test



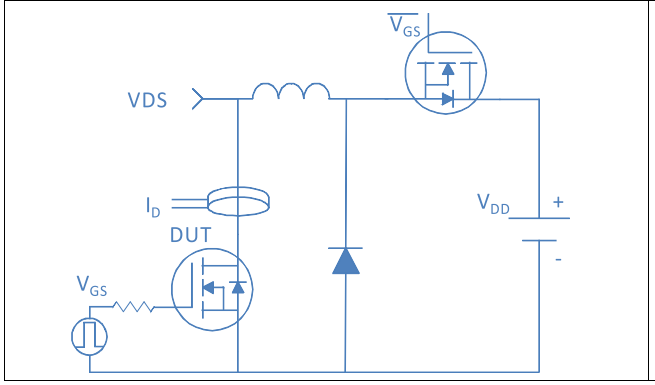


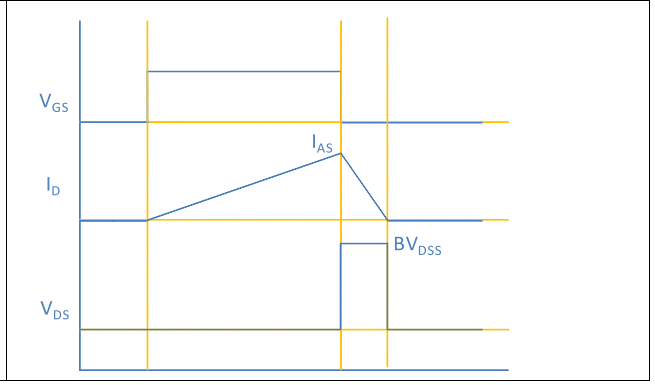
Gate Charge Test



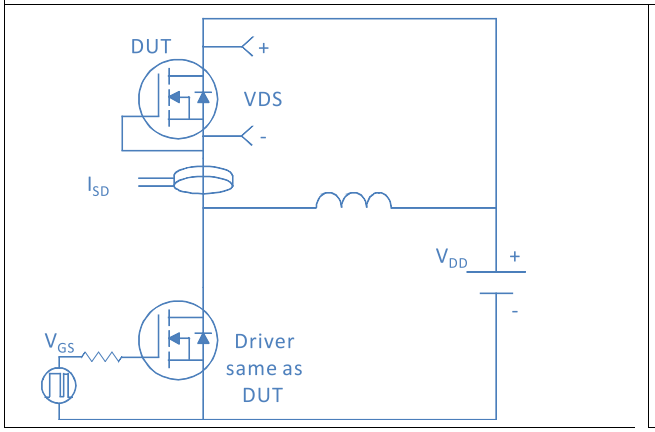


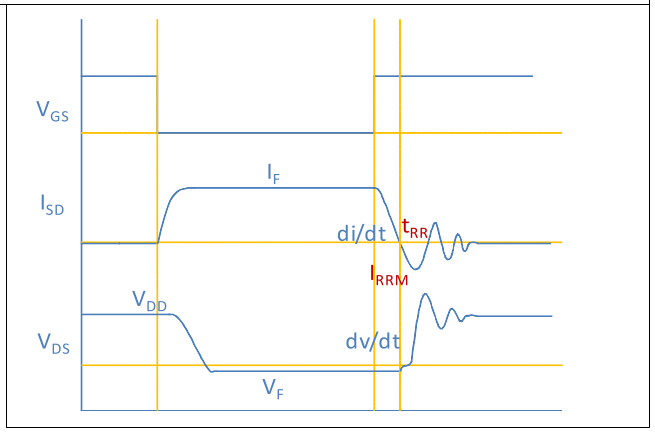
Uclamped Inductive Switching (UIS) Test





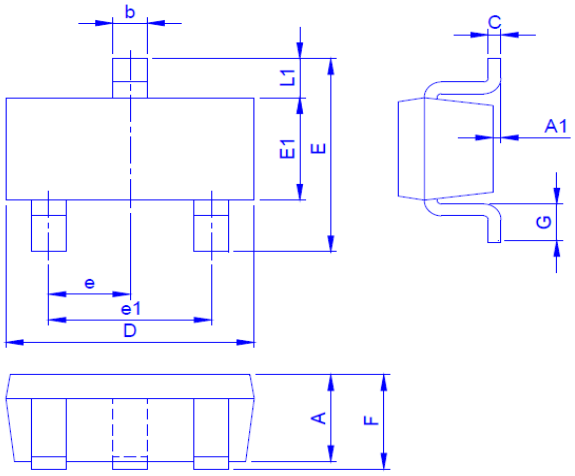
Diode Recovery Test





Package Outline

SOT-23, 3leads



Dimension in mm

Dimension	A	A1	A2	b	C	D	E	E1	e	e1	F	G	L1
Min.	0.7	0		0.35	0.1	2.8	2.6	1.5	0.9		0.8	0.3	0.55
Typ.						2.9	2.8	1.6	0.95	1.9			
Max.	1.12	0.1		0.5	0.2	3	3	1.7	1		1.2	0.6	0.65