

30V N-Ch Power MOSFET

Feature

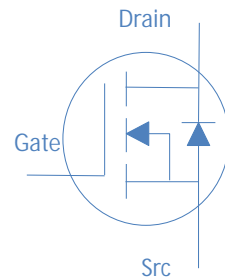
- High Speed Power Switching, Logic Level
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free, Halogen Free

V_{DS}		30	V
$R_{DS(on),typ}$	$V_{GS}=10V$	19	m Ω
$R_{DS(on),typ}$	$V_{GS}=4.5V$	30	m Ω
I_D (Silicon Limited)		6	A

Application

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

SOT-23



Part Number	Package	Marking
HTJ270N03	SOT23	14

Absolute Maximum Ratings at $T_J=25$ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	$T_A=25$	6	A
		$T_A=70$	4	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	24	A
Power Dissipation	P_D	$T_A=25$	1.25	W
Operating and Storage Temperature	T_J, T		-55 to 150	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	100	$^{\circ}W$

Electrical Characteristics at $T_j=25$ (unless otherwise specified)
Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1	1.7	3.0	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=24V, T_j=25$	-	-	1	μA
		$V_{GS}=0V, V_{DS}=20V, T_j=125$	-	-	10	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6A$	-	19	27	$m\Omega$
		$V_{GS}=4.5V, I_D=5A$	-	30	40	
Transconductance	g_{fs}	$V_{DS}=5V, I_D=6A$	-	12	-	S

Dynamic Characteristics

Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=15V, f=1MHz$	-	522	-	pF
Output Capacitance	C_{oss}		-	105	-	
Reverse Transfer Capacitance	C_{rss}		-	82	-	
Total Gate Charge	Q_g	$V_{DD}=15V, I_D=6A, V_{GS}=10V$	-	10.9	-	nC
Gate to Source Charge	Q_{gs}		-	1.75	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3.4	-	
Turn on Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=1A, V_{GS}=10V, R_G=6\Omega,$	-	8	-	ns
Rise time	t_r		-	7	-	
Turn off Delay Time	$t_{d(off)}$		-	15	-	
Fall Time	t_f		-	10	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_F=2A$	-		1.2	V
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Fig 1. Typical Output Characteristics

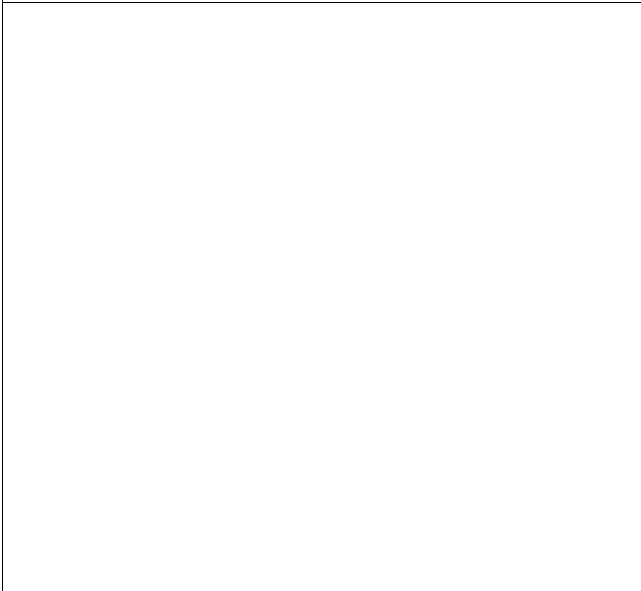


Figure 2. On-Resistance vs. Gate-Source Voltage

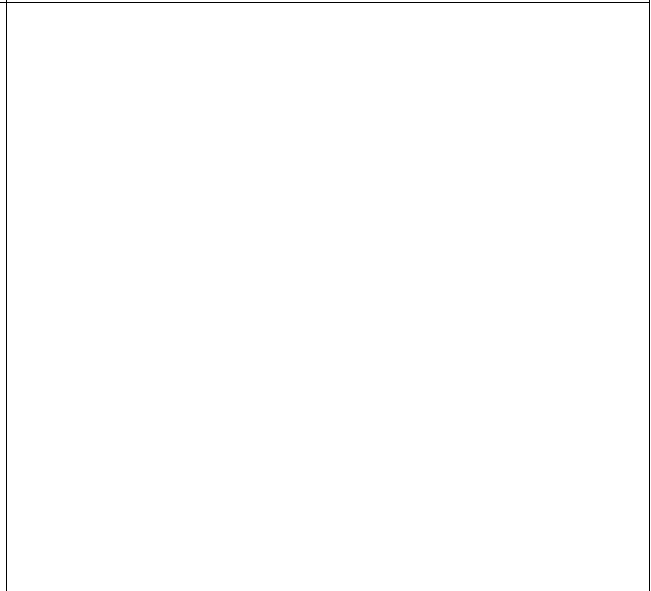


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

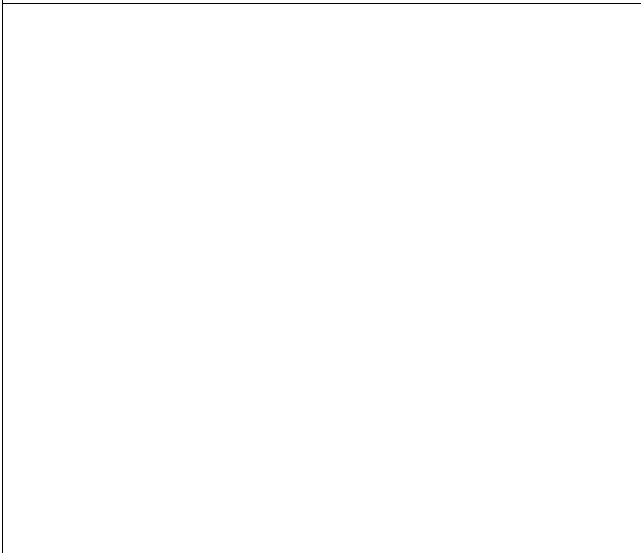


Figure 4. On-Resistance vs. Junction Temperature

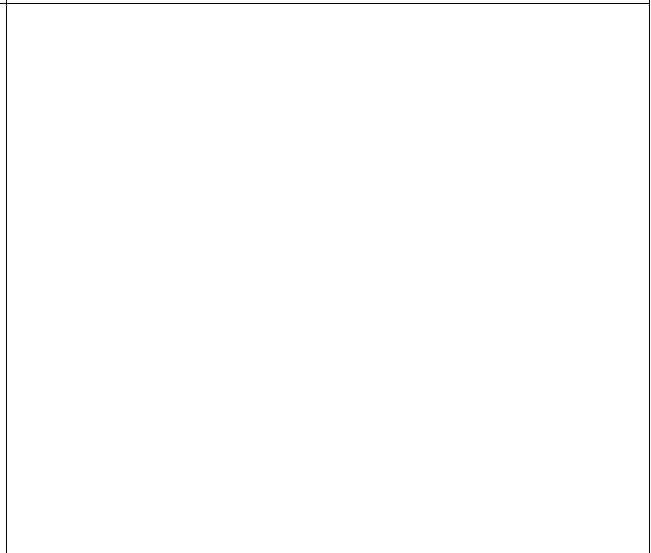


Figure 5. Typical Transfer Characteristics

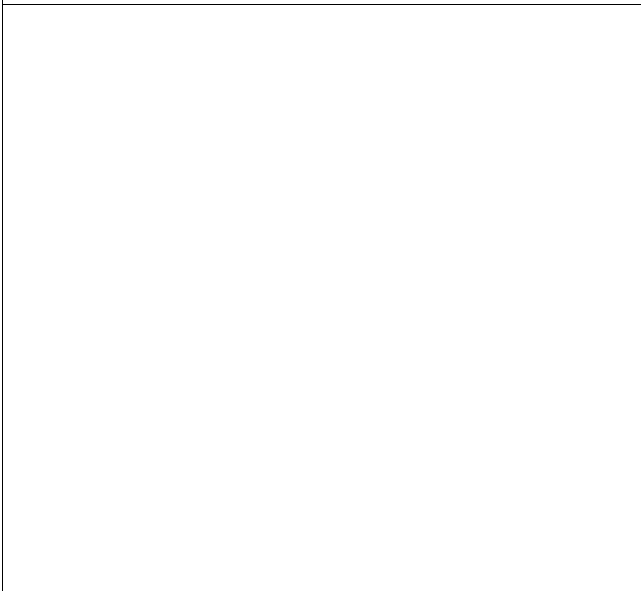
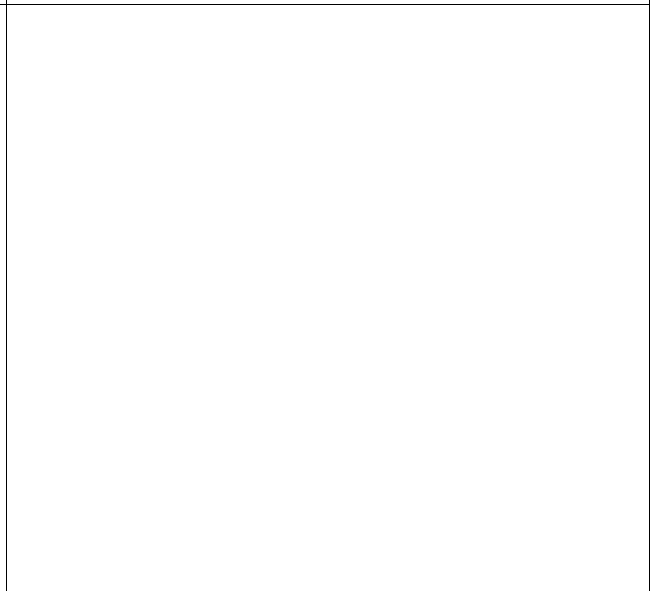


Figure 6. Typical Source-Drain Diode Forward Voltage





. 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

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Gate Charge Test

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Uclamped Inductive Switching (UIS) Test

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Diode Recovery Test

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