30V Dual N-Channel Power MOSFET

V_{DS}		30	V
$R_{DS(on),typ}$	V_{GS}=10V	9.5	mΩ
$R_{DS(on),typ}$	V_{GS}=4.5V	14.5	mΩ
I_D		12	A

Feature

- High Speed Power Switching, logic level
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free

Application

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- Power Tools
- UPS
- Motor Control

Part Number	Package	Marking
HTS110A03	SOIC-8	TS110A03

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	12	A
		T_A=100	8.5	
Drain to Source Voltage	V_{DS}	-	30	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	48	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.1mH, T_C=25	7.2	mJ
Power Dissipation	P_D	T_A=25	2	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to150	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$	25	/W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	62.5	/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	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250μA	1	1.7	3	
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	-	-	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	-	9.5	11	mΩ
		V_{GS}=4.5V, I_D=9A	-	14.5	18.5	
Transconductance	g_{fs}	V_{DS}=5V, I_D=12A	-	28	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz	-	1.7	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz	-	828	-	pF
Output Capacitance	C_{oss}		-	196	-	
Reverse Transfer Capacitance	C_{rss}		-	174	-	
Total Gate Charge	Q_g (10V)	V_{DD}=15V, I_D=12A, V_{GS}=10V	-	17.6	-	nC
Total Gate Charge	Q_g (4.5V)		-	11.9	-	
Gate to Source Charge	Q_{gs}		-	2.8	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	7.4	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=15V, I_D=1A, V_{GS}=10V, R_G=6Ω,	-	12	-	ns
Rise time	t_r		-	10	-	
Turn off Delay Time	$t_{d(off)}$		-	30	-	
Fall Time	t_f		-	15	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=2.3A	-		1.2	V
Reverse Recovery Time	t_{rr}	I_F=2.3A, dI_F/dt=100A/μs	-	22	-	ns
Reverse Recovery Charge	Q_{rr}		-	12	-	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 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-Case

SOIC-8, 8 leads