

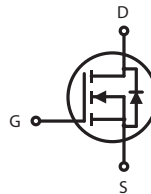
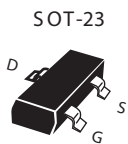
STS 2306

PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
20V	2.8A	45 @ V _{GS} = 4.5V
		60 @ V _{GS} = 2.5V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- SOT-23 package.



ABSOLUTE MAXIMUM RATINGS (T_A=25 °C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	± 8	V
Drain Current-Continuous ^a @ T _J =125°C -Pulsed ^b	I _D	2.8	A
	I _{DM}	12	A
Drain-Source Diode Forward Current ^a	I _S	1.25	A
Maximum Power Dissipation ^a	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R _{thJA}	100	°C/W
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ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$			± 100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.8	1.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 2.8A$		33	45	m ohm
		$V_{GS} = 2.5V, I_D = 2.0A$		52	60	
Forward Transconductance	g_{FS}	$V_{DS} = 7V, I_D = 5A$		5		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C_{ISS}	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1.0MHz$		608		pF
Output Capacitance	C_{OSS}			114		pF
Reverse Transfer Capacitance	C_{RSS}			86		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 10V,$ $I_D = 1A,$ $V_{GEN} = 4.5V,$ $R_L = 10\text{ ohm}$ $R_{GEN} = 10\text{ ohm}$		10		ns
Rise Time	t_r			14		ns
Turn-Off Delay Time	$t_{D(OFF)}$			39		ns
Fall Time	t_f			26		ns
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 1A,$ $V_{GS} = 4.5V$		9.2		nC
Gate-Source Charge	Q_{gs}			1.6		nC
Gate-Drain Charge	Q_{gd}			2.6		nC

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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS ^b						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_s = 1.25A$		0.84	1.3	V

Notes

- Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
- Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.