



TSM3442

20V N-Channel Enhancement Mode MOSFET

SOT-26



Pin assignment:

- | | |
|----------|-----------|
| 1. Drain | 6. Drain |
| 2. Drain | 5. Drain |
| 3. Gate | 4. Source |

$V_{DS} = 20V$

$R_{DS(on)}, V_{GS} @ 4.5V, I_{DS} @ 3.6A = 60m\Omega$

$R_{DS(on)}, V_{GS} @ 2.5V, I_{DS} @ 3.1A = 90m\Omega$

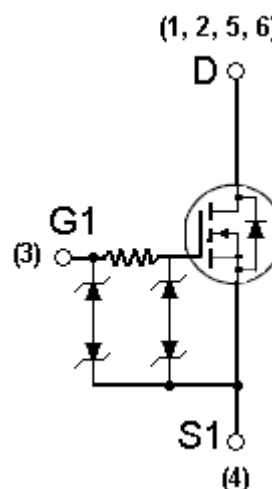
Features

- ◇ Advanced trench process technology
- ◇ High density cell design for ultra low on-resistance
- ◇ N-Channel 2.5V (G-S) MOSFET
- ◇ Excellent thermal and electrical capabilities
- ◇ Compact and low profile SOT-23 package

Ordering Information

Part No.	Packing	Package
TSM3442CX6	Tape & Reel 3000pcs / Per Reel	SOT-26

Block Diagram



Absolute Maximum Rating ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	20V	V	
Gate-Source Voltage	V_{GS}	± 8	V	
Continuous Drain Current	I_D	3.6	A	
Pulsed Drain Current	I_{DM}	10	A	
Maximum Power Dissipation		$T_a = 25^\circ C$	1.5	W
		$T_a = 75^\circ C$	1.0	
Operating Junction Temperature	T_J	+150	$^\circ C$	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^\circ C$	

Thermal Performance

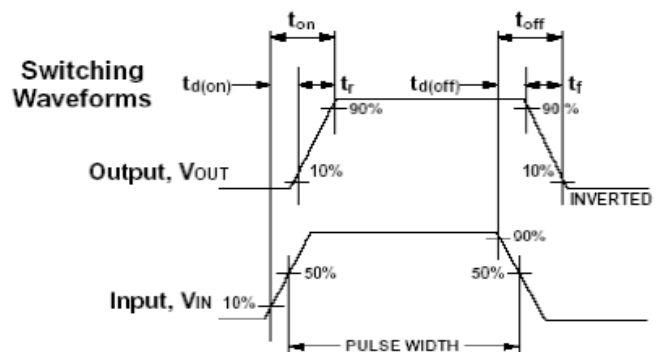
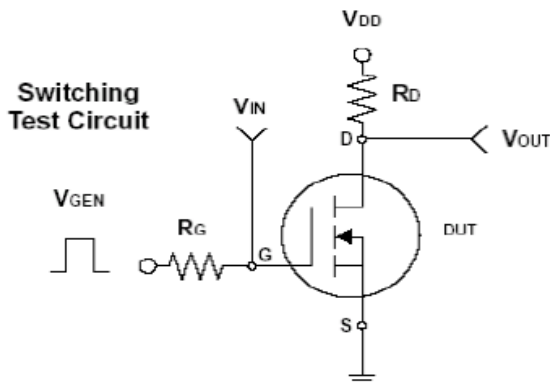
Parameter	Symbol	Limit	Unit
Lead Temperature (1/8" from case)	T_L	5	S
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta ja}$	100	$^\circ C/W$

Note: Surface mounted on FR4 board $t \leq 5sec$.

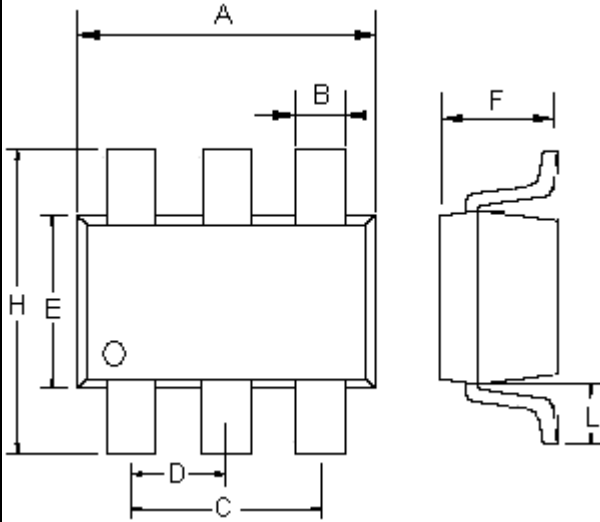


Electrical Characteristics						
Rate $I_D = 2.4A$, ($T_a = 25^\circ C$ unless otherwise noted)						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	20	--	--	V
Drain-Source On-State Resistance	$V_{GS} = 4.5V, I_D = 3.6A$	$R_{DS(ON)}$	--	45	60	m Ω
Drain-Source On-State Resistance	$V_{GS} = 2.5V, I_D = 3.1A$	$R_{DS(ON)}$	--	70	90	
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	0.45	--	--	V
Zero Gate Voltage Drain Current	$V_{DS} = 20V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
Gate Body Leakage	$V_{GS} = \pm 8V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
On-State Drain Current	$V_{DS} \geq 5V, V_{GS} = 4.5V$	$I_{D(ON)}$	6	--	--	A
Forward Transconductance	$V_{DS} = 5V, I_D = 3.6A$	g_{fs}	--	10	--	S
Dynamic						
Total Gate Charge	$V_{DS} = 10V, I_D = 3.6A, V_{GS} = 4.5V$	Q_g	--	5.0	10	nC
Gate-Source Charge		Q_{gs}	--	0.65	--	
Gate-Drain Charge		Q_{gd}	--	1.5	--	
Turn-On Delay Time	$V_{DD} = 10V, R_L = 10\Omega, I_D = 1A, V_{GEN} = 4.5V, R_G = 6\Omega$	$t_{d(on)}$	--	7	15	nS
Turn-On Rise Time		t_r	--	55	80	
Turn-Off Delay Time		$t_{d(off)}$	--	16	60	
Turn-Off Fall Time		t_f	--	10	25	
Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz$	C_{iss}	--	450	--	pF
Output Capacitance		C_{oss}	--	70	--	
Reverse Transfer Capacitance		C_{rss}	--	43	--	
Source-Drain Diode						
Max. Diode Forward Current		I_S	--	--	1.6	A
Diode Forward Voltage	$I_S = 1.0A, V_{GS} = 0V$	V_{SD}	--	0.75	1.2	V

Note : pulse test: pulse width $\leq 300\mu S$, duty cycle $\leq 2\%$



SOT-26 Mechanical Drawing



SOT-26 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.70	3.00	0.106	0.118
B	0.25	0.50	0.010	0.020
C	1.90(typ)		0.075(typ)	
D	0.95(typ)		0.037(typ)	
E	1.50	1.70	0.059	0.067
F	1.05	1.35	0.041	0.053
H	2.60	3.00	0.102	0.118
L	0.60(typ)		0.024(typ)	