



TSM3443

Preliminary

-20V P-Channel Enhancement-Mode MOSFET

SOT-26



Pin assignment:
1. Drain 6. Drain
2. Drain 5. Drain
3. Gate 4. Source

$V_{DS} = -20V$

$R_{DS(on)}, V_{GS} @ -4.5V, I_{DS} @ -4.7A = 60m\Omega$

$R_{DS(on)}, V_{GS} @ -2.5V, I_{DS} @ -3.7A = 100m\Omega$

Features

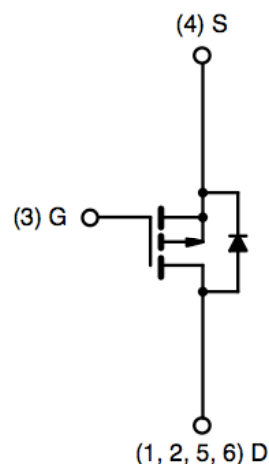
- Advanced trench process technology
- High density cell design for ultra low on-resistance
- Fully Characterized Avalanche Voltage and Current
- Improved Shoot-Through FOM

Ordering Information

Part No.	Packing	Package
TSM3443CX6	Tape & Reel 3,000/per reel	SOT-26

Block Diagram

P-Channel MOSFET



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}	± 12	V
Continuous Drain Current,	I_D	-4.7	A
Pulsed Drain Current,	I_{DM}	-20	A
Maximum Power Dissipation	P_D	2	W
		1.3	
Operating Junction Temperature	T_J	+150	$^\circ C$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^\circ C$

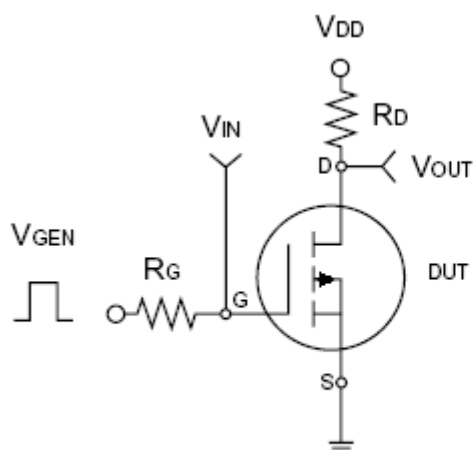
Thermal Performance

Parameter	Symbol	Limit	Unit
Junction to Foot (Drain) Thermal Resistance	$R_{\theta JF}$	30	$^\circ C/W$
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta JA}$	50	$^\circ C/W$

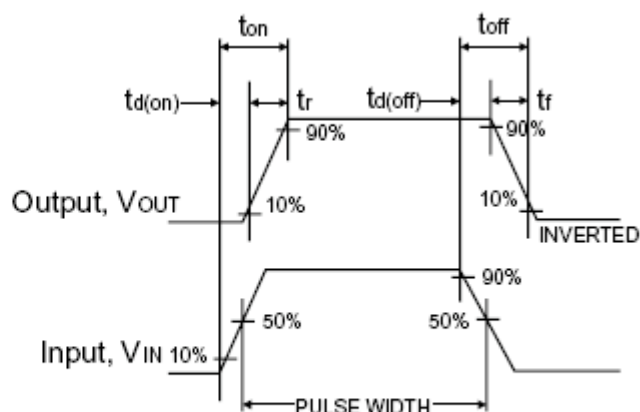
Note: Surface mounted on FR4 board $t \leq 10$ sec.

Electrical Characteristics						
(Ta = 25 °C unless otherwise noted)						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = - 250uA	BV _{DSS}	-20	--	--	V
Drain-Source On-State Resistance	V _{GS} = - 4.5V, I _D = -4.7A	R _{DS(ON)}	--	48	60	mΩ
Drain-Source On-State Resistance	V _{GS} = - 2.5V, I _D = -1A	R _{DS(ON)}	--	80	100	
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = - 250uA	V _{GS(TH)}	-0.6	--	-1.4	V
Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V	I _{DSS}	--	--	-1.0	μA
Gate Body Leakage	V _{GS} = ±12V, V _{DS} = 0V	I _{GSS}	--	--	±100	nA
On-State Drain Current	V _{DS} =-5V, V _{GS} = -4.5V	I _{D(ON)}	-15	--	--	A
Forward Transconductance	V _{DS} = -10V, I _D = - 4.7A	g _{fs}	--	11	--	S
Dynamic						
Total Gate Charge	V _{DS} = -10V, I _D = -4.7A, V _{GS} = -4.5V	Q _g	--	6	9	nC
Gate-Source Charge		Q _{gs}	--	1.4	--	
Gate-Drain Charge		Q _{gd}	--	1.9	--	
Turn-On Delay Time	V _{DD} = -10V, R _L = 10Ω, I _D = -1A, V _{GEN} = - 4.5V, R _G = 6Ω	t _{d(on)}	--	22	35	nS
Turn-On Rise Time		t _r	--	35	55	
Turn-Off Delay Time		t _{d(off)}	--	45	70	
Turn-Off Fall Time		t _f	--	25	40	
Input Capacitance	V _{DS} = -10V, V _{GS} = 0V, f = 1.0MHz	C _{iss}	--	640	--	pF
Output Capacitance		C _{oss}	--	180	--	
Reverse Transfer Capacitance		C _{rss}	--	90	--	
Source-Drain Diode						
Max. Diode Forward Current		I _S	--	--	-1.3	A
Diode Forward Voltage	I _S = -1.3A, V _{GS} = 0V	V _{SD}	--	-0.75	-1.2	V

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

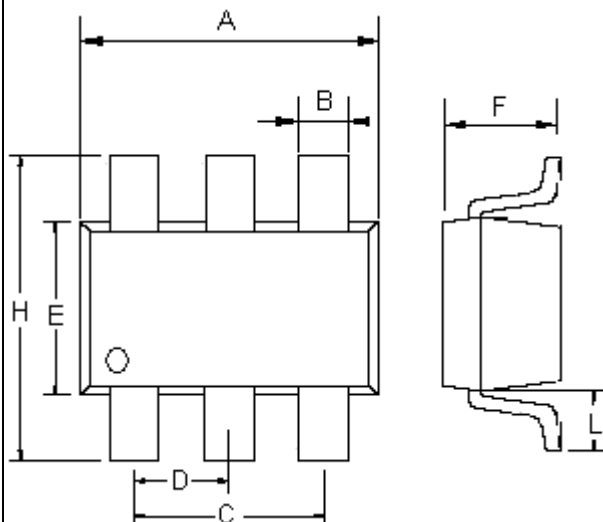


Switching Test Circuit



Switchin Waveforms

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)	