

### SOT-26



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

### PRODUCT SUMMARY

V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (mΩ)	I <sub>D</sub> (A)
20	60 @ V <sub>GS</sub> = -4.5V	-4.7
	100 @ V <sub>GS</sub> = -2.5V	-3.8

### Features

- Advance Trench Process Technology
- High Density Cell Design fPor Ultra Low On-resistance

### Application

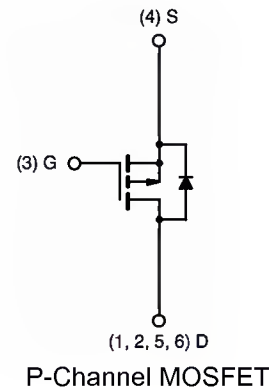
- Load Switch
- PA Switch

### Ordering Information

Part No.	Package	Packing
TSM3443CX6 RF	SOT-26	3Kpcs / 7" Reel
TSM3443CX6 RFG	SOT-26	3Kpcs / 7" Reel

Note: "G" denote for Halogen Free Product

### Block Diagram



### Absolute Maximum Rating (Ta = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	-20	V
Gate-Source Voltage	V <sub>GS</sub>	±12	V
Continuous Drain Current, V <sub>GS</sub> @4.5V.	I <sub>D</sub>	-4.7	A
Pulsed Drain Current, V <sub>GS</sub> @4.5V	I <sub>DM</sub>	-20	A
Continuous Source Current (Diode Conduction) <sup>a,b</sup>	I <sub>S</sub>	-1.7	A
Maximum Power Dissipation	P <sub>D</sub>	Ta = 25°C	2
		Ta = 70°C	1.3
Operating Junction Temperature	T <sub>J</sub>	+150	°C
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to +150	°C

### Thermal Performance

Parameter	Symbol	Limit	Unit
Junction to Case Thermal Resistance	R <sub>θJC</sub>	30	°C/W
Junction to Ambient Thermal Resistance (PCB mounted)	R <sub>θJA</sub>	80	°C/W

Notes:

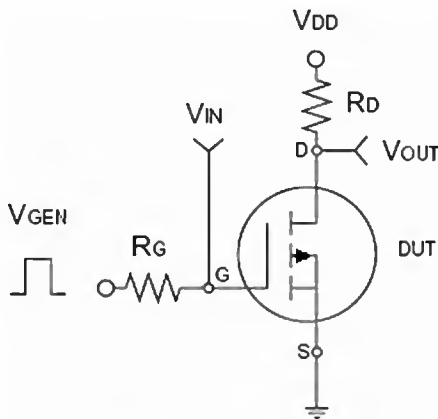
- a. Pulse width limited by the Maximum junction temperature
- b. Surface Mounted on FR4 Board, t ≤ 5 sec.

### Electrical Specifications (Ta = 25°C unless otherwise noted)

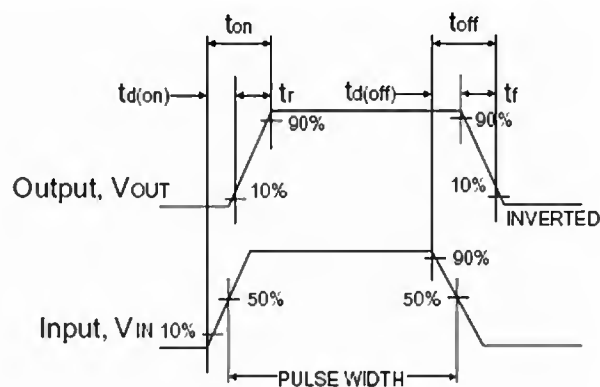
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	$BV_{DSS}$	-20	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	$V_{GS(TH)}$	-0.6	--	-1.4	V
Gate Body Leakage	$V_{GS} = \pm 12V, V_{DS} = 0V$	$I_{GSS}$	--	--	$\pm 100$	nA
Zero Gate Voltage Drain Current	$V_{DS} = -20V, V_{GS} = 0V$	$I_{DSS}$	--	--	-1.0	$\mu A$
On-State Drain Current <sup>a</sup>	$V_{DS} = -5V, V_{GS} = -4.5V$	$I_{D(ON)}$	-15	--	--	A
Drain-Source On-State Resistance <sup>a</sup>	$V_{GS} = -4.5V, I_D = -4.7A$	$R_{DS(ON)}$	--	48	60	m $\Omega$
	$V_{GS} = -2.5V, I_D = -3.8A$		--	80	100	
Forward Transconductance <sup>a</sup>	$V_{DS} = -10V, I_D = -4.7A$	$g_{fs}$	--	11	--	S
Diode Forward Voltage	$I_S = -1.7A, V_{GS} = 0V$	$V_{SD}$	--	-0.8	-1.2	V
<b>Dynamic<sup>b</sup></b>						
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	--	
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	--	
<b>Switching<sup>c</sup></b>						
Turn-On Delay Time	$V_{DD} = -10V, R_L = 10\Omega,$ $I_D = -1A, V_{GEN} = -4.5V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	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	50	

**Notes:**

- a. pulse test: PW  $\leq 300\mu s$ , duty cycle  $\leq 2\%$
- b. For DESIGN AID ONLY, not subject to production testing.
- b. Switching time is essentially independent of operating temperature.



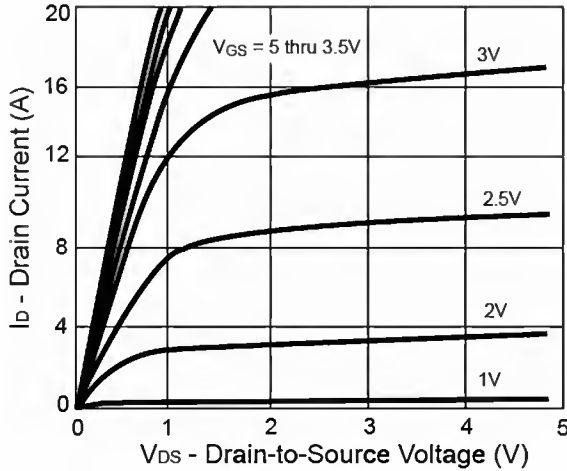
**Switching Test Circuit**



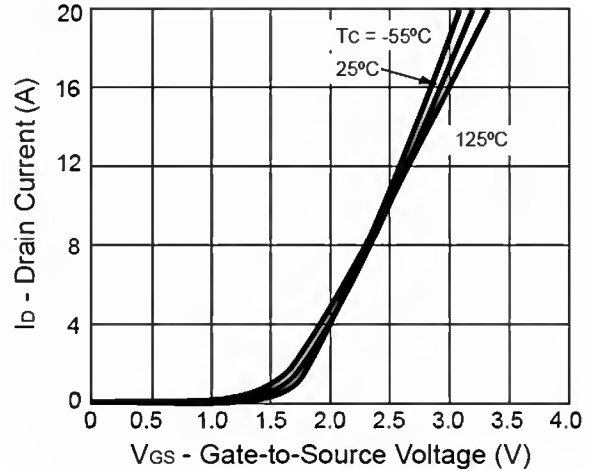
**Switchin Waveforms**

**Electrical Characteristics Curve** (Ta = 25°C, unless otherwise noted)

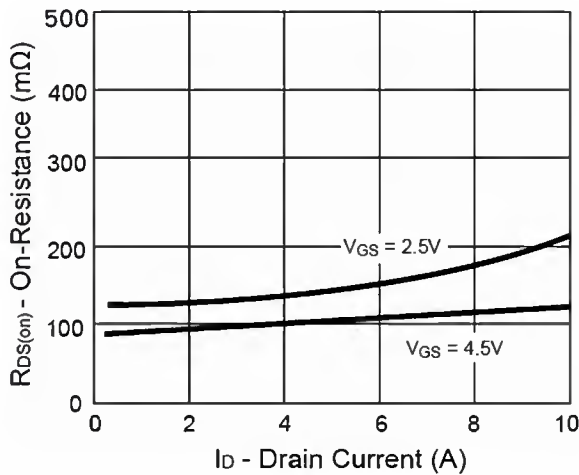
**Output Characteristics**



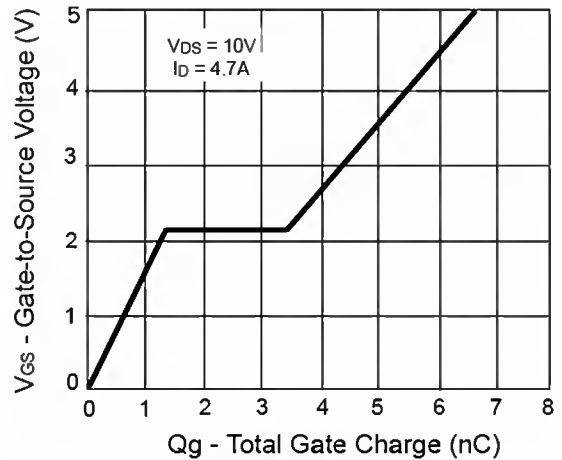
**Transfer Characteristics**



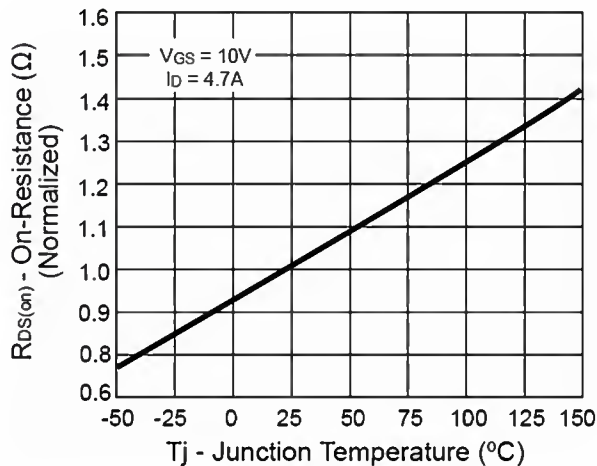
**On-Resistance vs. Drain Current**



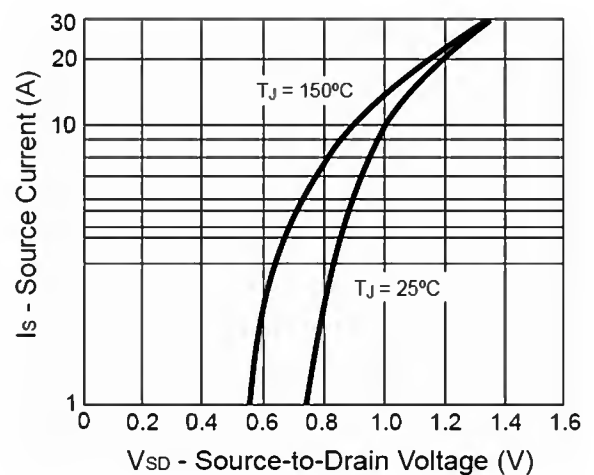
**Gate Charge**



**On-Resistance vs. Junction Temperature**

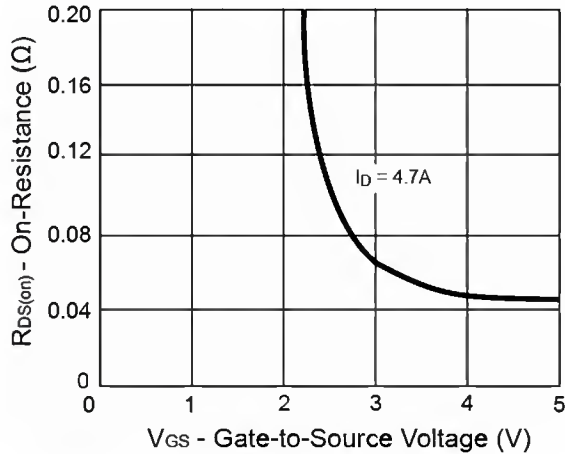


**Source-Drain Diode Forward Voltage**

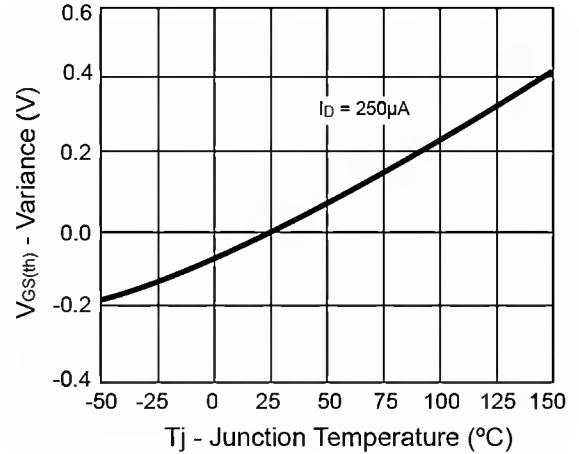


**Electrical Characteristics Curve** ( $T_a = 25^\circ\text{C}$ , unless otherwise noted)

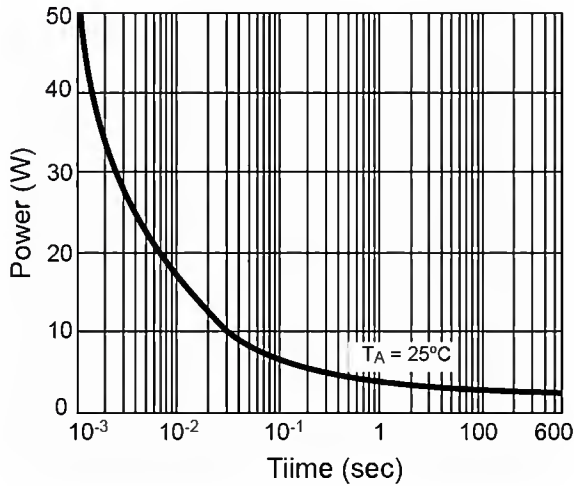
**On-Resistance vs. Gate-Source Voltage**



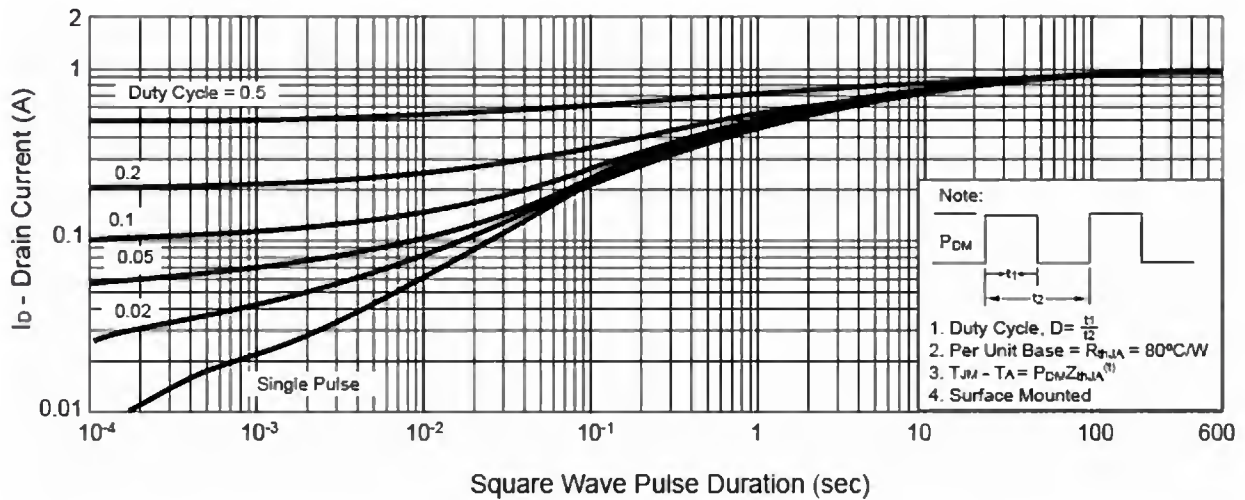
**Threshold Voltage**



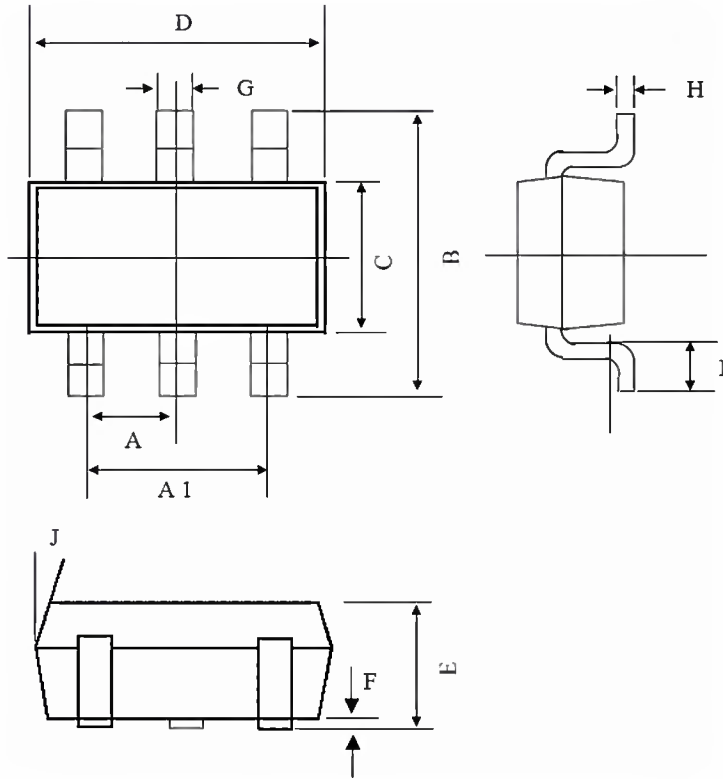
**Single Pulse Power**



**Normalized Thermal Transient Impedance, Junction-to-Ambient**

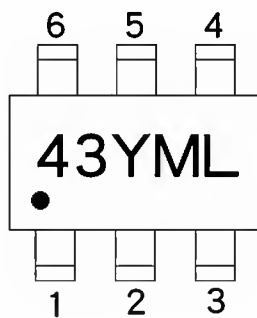


**SOT-26 Mechanical Drawing**



SOT-26 DIMENSION						
DIM	MILLIMETERS			INCHES		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.95 BSC			0.0374 BSC		
A1	1.9 BSC			0.0748 BSC		
B	2.60	2.80	3.00	0.1024	0.1102	0.1181
C	1.40	1.50	1.70	0.0551	0.0591	0.0669
D	2.80	2.90	3.10	0.1101	0.1142	0.1220
E	1.00	1.10	1.20	0.0394	0.0433	0.0472
F	0.00	--	0.10	0.00		0.0039
G	0.35	0.40	0.50	0.0138	0.0157	0.0197
H	0.10	0.15	0.20	0.0039	0.0059	0.0079
I	0.30	--	0.60	0.0118	--	0.0236
J	5°	--	10°	5°	--	10°

**Marking Diagram**



- 43** = Device Code
- Y** = Year Code
- M** = Month Code
- (**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apr, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
- = Month Code for Halogen Free Product
- (**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
- L** = Lot Code

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