

SOT-26



Pin Definition:

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

Key Parameter Performance

Parameter		Value	Unit
V_{DS}		-30	V
$R_{DS(on)}$ (max)	$V_{GS} = -10V$	60	m Ω
	$V_{GS} = -4.5V$	100	
Q_g		9.52	nC

Features

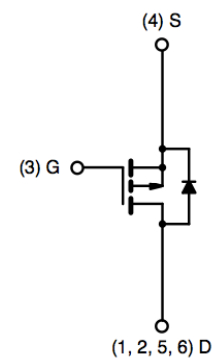
- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

Ordering Information

Part No.	Package	Packing
TSM3457CX6 RFG	SOT-26	3kpcs / 7" Reel

Note: "G" denotes for Halogen- and Antimony-free as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds

Block Diagram



P-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5	A
Pulsed Drain Current	I_{DM}	-20	A
Continuous Source Current (Diode Conduction) ^(Note 1,2)	I_S	-1.7	A
Maximum Power Dissipation	$T_A = 25^\circ\text{C}$	2.0	W
	$T_A = 70^\circ\text{C}$	1.3	
Operating Junction Temperature	T_J	+150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^\circ\text{C}$

Thermal Performance

Parameter	Symbol	Limit	Unit
Junction to Case Thermal Resistance	$R_{\theta JC}$	30	$^\circ\text{C/W}$
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta JA}$	80	$^\circ\text{C/W}$

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

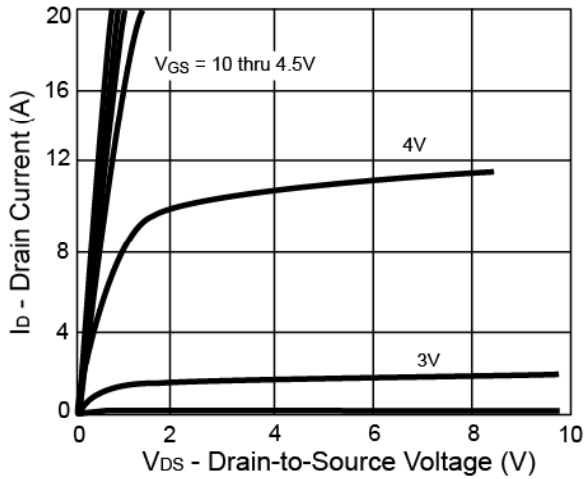
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static (Note 3)						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = -250\mu A$	BV_{DSS}	-30	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	$V_{GS(TH)}$	-1.0	-1.5	-3.0	V
Gate Body Leakage	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = -24V, V_{GS} = 0V$	I_{DSS}	--	--	-1.0	μA
On-State Drain Current	$V_{DS} = -5V, V_{GS} = -10V$	$I_{D(ON)}$	-20	--	--	A
Drain-Source On-State Resistance	$V_{GS} = -4.5V, I_D = -3.7A$	$R_{DS(ON)}$	--	82	100	m Ω
	$V_{GS} = -10V, I_D = -5A$		--	50	60	
Forward Transconductance	$V_{DS} = -15V, I_D = -5A$	g_{fs}	--	10	--	S
Diode Forward Voltage	$I_S = -1.7A, V_{GS} = 0V$	V_{SD}	--	-0.8	-1.2	V
Dynamic (Note 4,5)						
Total Gate Charge	$V_{DS} = -15V, I_D = -3.7A,$ $V_{GS} = -10V$	Q_g	--	9.52		nC
Gate-Source Charge		Q_{gs}	--	3.43	--	
Gate-Drain Charge		Q_{gd}	--	1.71	--	
Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$	C_{iss}	--	551.57	--	pF
Output Capacitance		C_{oss}	--	90.96	--	
Reverse Transfer Capacitance		C_{rss}	--	60.79	--	
Switching (Note 4,5)						
Turn-On Delay Time	$V_{DD} = -15V, R_L = 15\Omega,$ $I_D = -1A, V_{GEN} = -10V,$ $R_G = 6\Omega$	$t_{d(on)}$	--	10.8	--	ns
Turn-On Rise Time		t_r	--	2.33	--	
Turn-Off Delay Time		$t_{d(off)}$	--	22.53	--	
Turn-Off Fall Time		t_f	--	3.87	--	

Notes:

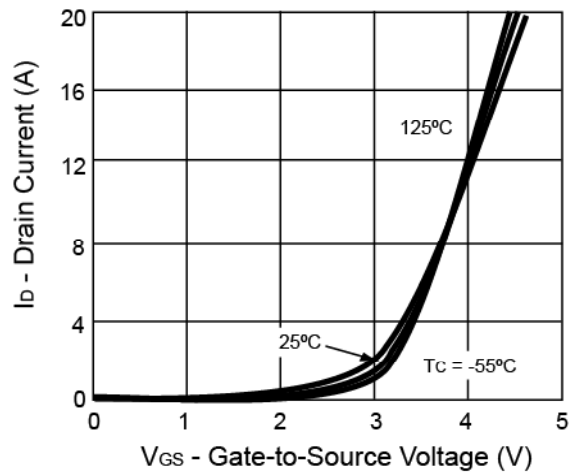
1. Pulse width limited by the Maximum junction temperature
2. Surface Mounted on FR4 Board, $t \leq 5$ sec.
3. pulse test: $PW \leq 300\mu S$, duty cycle $\leq 2\%$
4. For DESIGN AID ONLY, not subject to production testing.
5. Switching time is essentially independent of operating temperature.

Electrical Characteristics Curves

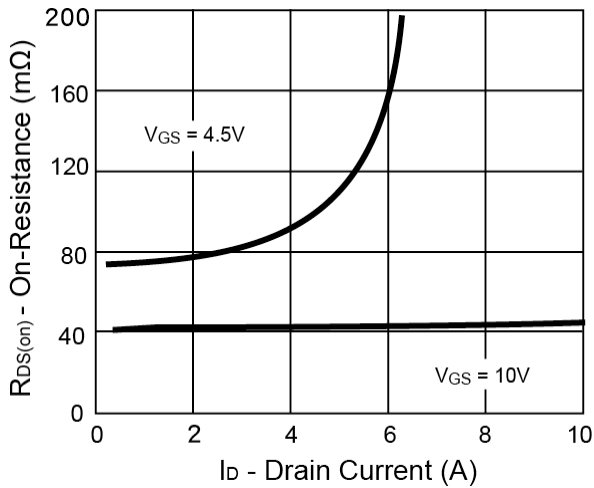
Output Characteristics



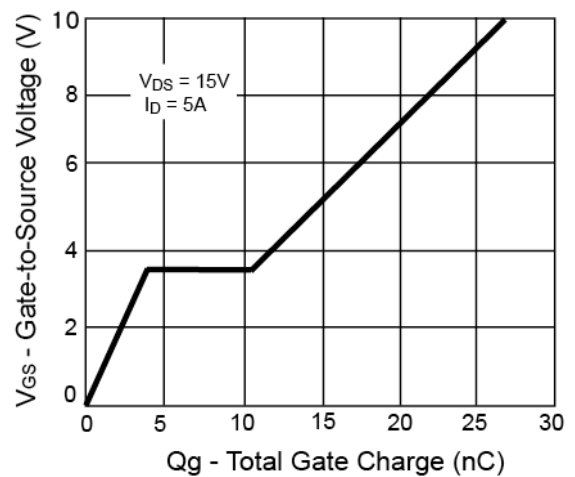
Transfer Characteristics



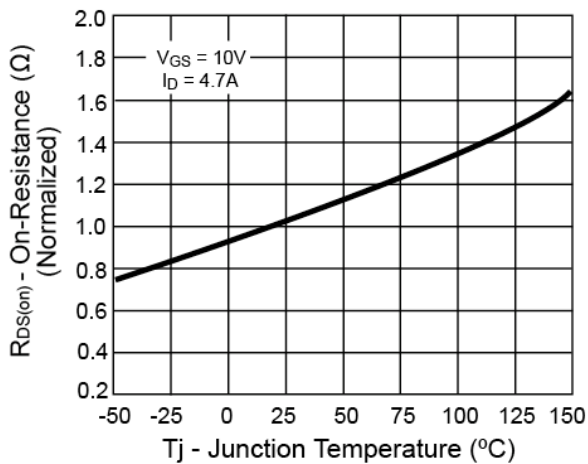
On-Resistance vs. Drain Current



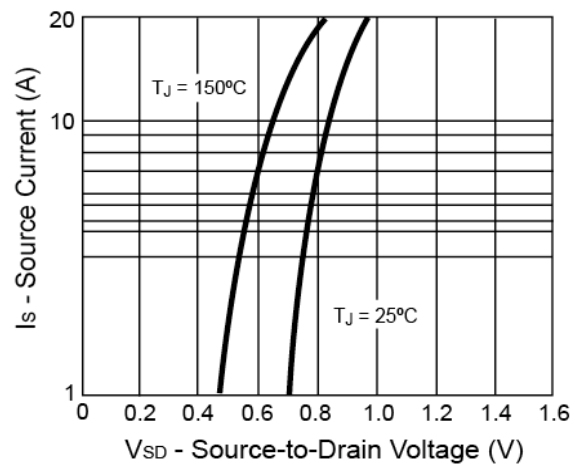
Gate Charge



On-Resistance vs. Junction Temperature

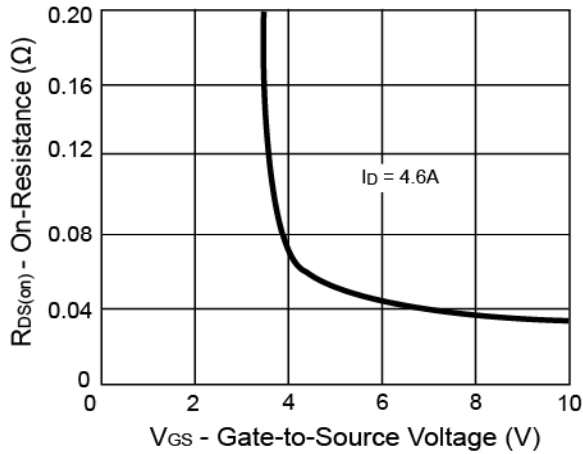


Source-Drain Diode Forward Voltage

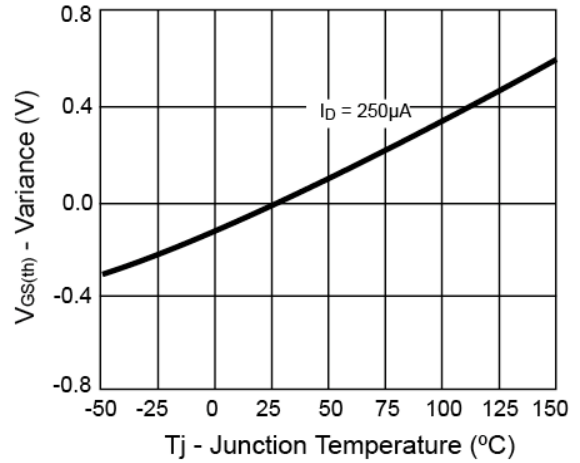


Electrical Characteristics Curves

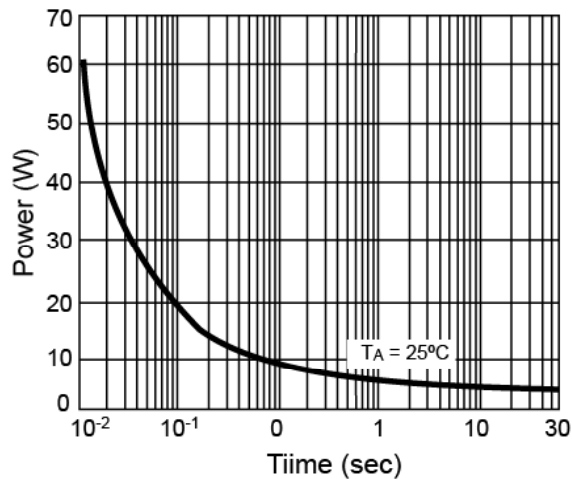
On-Resistance vs. Gate-Source Voltage



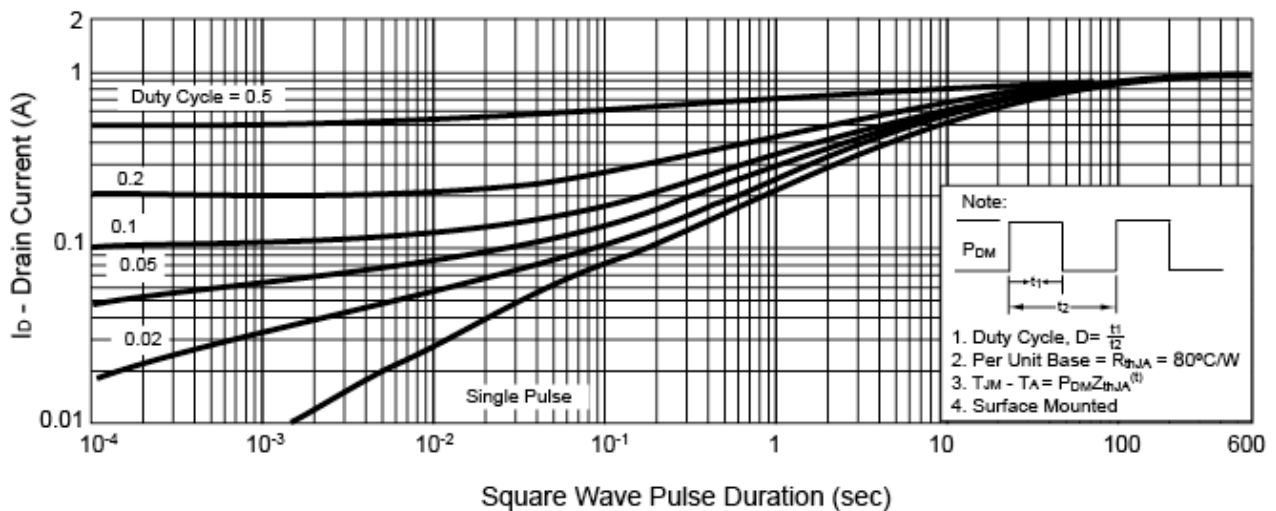
Threshold Voltage



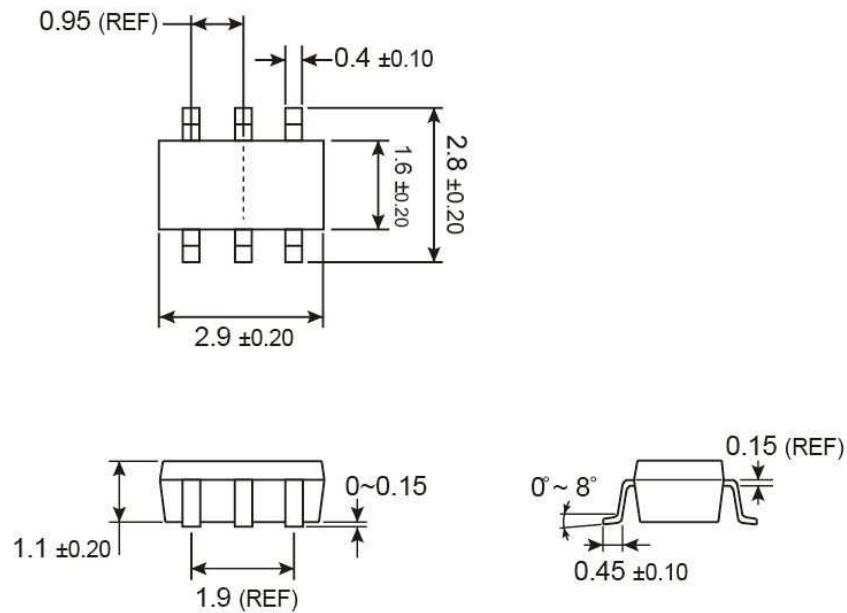
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

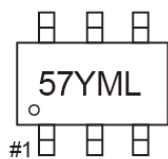


SOT-26 Mechanical Drawing



Unit: Millimeters

Marking Diagram



57 = Device Code
Y = Year Code
M = 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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