

SOT-26



Pin Definition:

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

PRODUCT SUMMARY

V_{DS} (V)	$R_{DS(on)}$ (m Ω)	I_D (A)
20	20 @ $V_{GS} = 4.5V$	6
	28 @ $V_{GS} = 2.5V$	5

Features

- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On resistance
- ESD Protected HBM 2KV

Application

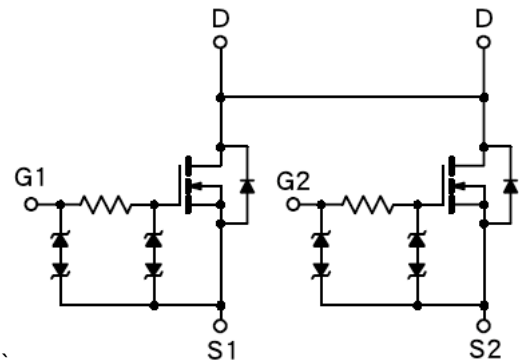
- Portable Applications
- Battery Management

Ordering Information

Part No.	Package	Packing
TSM2611EDCX6 RFG	SOT-26	3Kpcs / 7" Reel

Note: "G" denotes Halogen Free Product.

Block Diagram



Dual N-Channel MOSFET

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current	I_D	6	A
Pulsed Drain Current	I_{DM}	22	A
Continuous Source Current (Diode Conduction) ^{a,b}	I_S	1	A
Maximum Power Dissipation	P_D	$T_A=25^\circ C$	0.83
		$T_A=100^\circ C$	0.3
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 Case Thermal Resistance	$R_{\theta_{JC}}$	80	$^\circ C/W$
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta_{JA}}$	150	$^\circ C/W$

Notes:

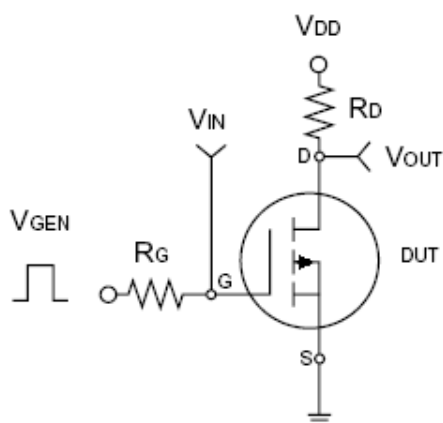
- Pulse width limited by the Maximum junction temperature
- Surface Mounted on a 1 in² pad, $t \leq 10$ sec.

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

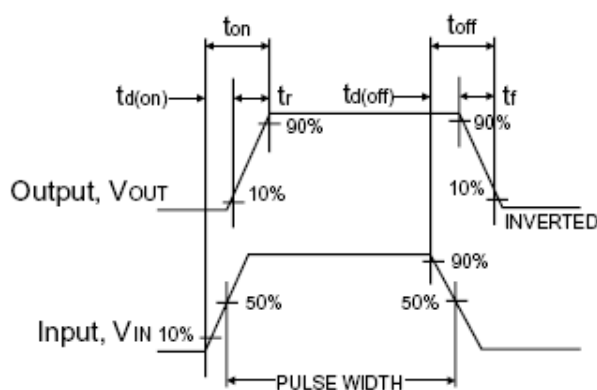
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	20	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(TH)}$	0.5	0.7	1	V
Gate Body Leakage	$V_{GS} = \pm 10V, V_{DS} = 0V$	I_{GSS}	--	--	± 10	μA
Zero Gate Voltage Drain Current	$V_{DS} = 16V, V_{GS} = 0V$	I_{DSS}	--	--	1.0	μA
Drain-Source On-State Resistance	$V_{GS} = 4.5V, I_D = 6A$	$R_{DS(ON)}$	--	16	20	m Ω
	$V_{GS} = 2.5V, I_D = 5A$		--	20	28	
Diode Forward Voltage	$I_S = 1A, V_{GS} = 0V$	V_{SD}	--	0.7	1.3	V
Dynamic^b						
Total Gate Charge	$V_{DS} = 10V, I_D = 6A, V_{GS} = 4.5V$	Q_g	--	13.5	19	nC
Gate-Source Charge		Q_{gs}	--	0.85	--	
Gate-Drain Charge		Q_{gd}	--	5.4	--	
Gate Resistance	$V_{GS}=V_{DS}=0V, f = 1.0MHz$	R_g	--	1	--	Ω
Input Capacitance	$V_{DS} = 10V, V_{GS} = 0V, f = 1.0MHz$	C_{iss}	--	680	--	pF
Output Capacitance		C_{oss}	--	144	--	
Reverse Transfer Capacitance		C_{rss}	--	137	--	
Switching^{b,c}						
Turn-On Delay Time	$V_{DD} = 10V, I_D = 1A, V_{GEN} = 10V, R_G = 3.3\Omega$	$t_{d(on)}$	--	6	12	nS
Turn-On Rise Time		t_r	--	12	24	
Turn-Off Delay Time		$t_{d(off)}$	--	65	120	
Turn-Off Fall Time		t_f	--	35	65	
Diode Characteristic^b						
Diode Forward Voltage	$I_S = 1A, V_{GS} = 0V$	V_{SD}	--	0.7	1.3	nS
Reverse Recovery Time	$I_{SD} = 6A,$	t_r	--	24	--	
Reversion Recovery Charge	$dI_{SD}/dt=100A/\mu S$	$t_{d(off)}$	--	16	--	

Notes:

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



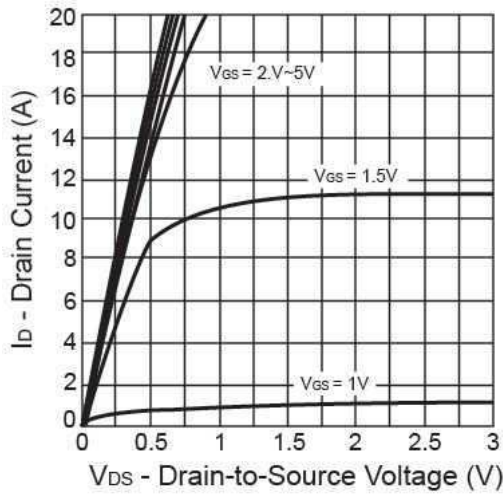
Switching Test Circuit



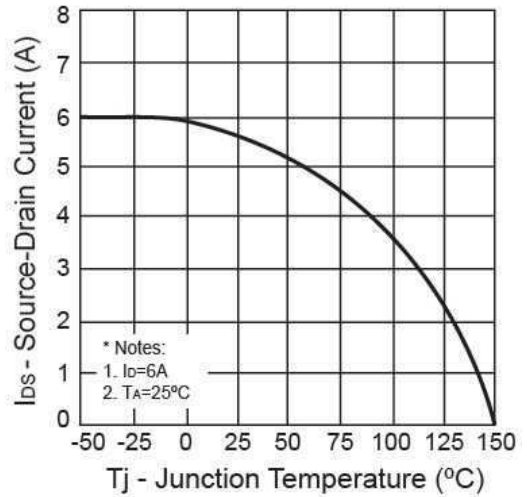
Switchin Waveforms

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

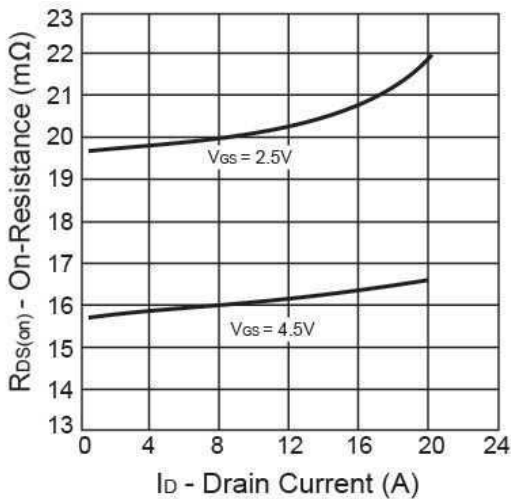
Output Characteristics



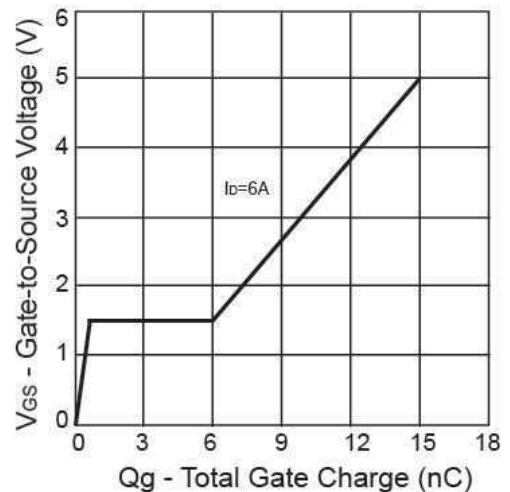
Drain Current vs. Junction Temperature



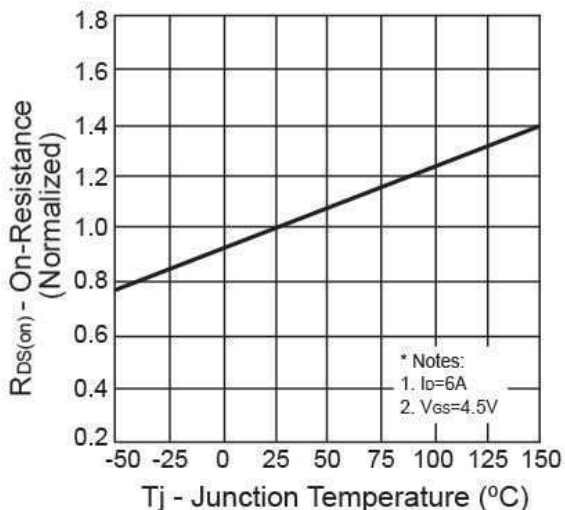
On-Resistance vs. Drain Current



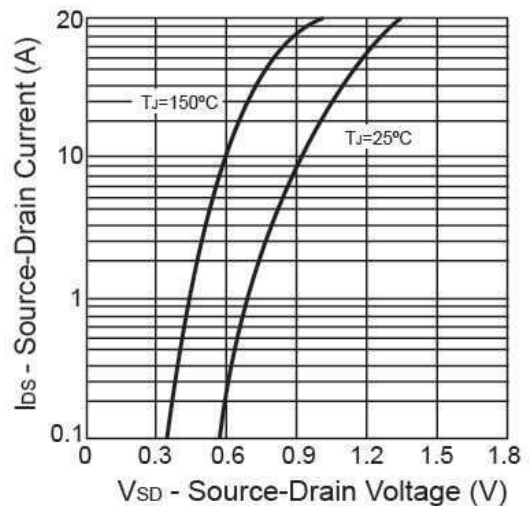
Gate Charge



On-Resistance vs. Junction Temperature

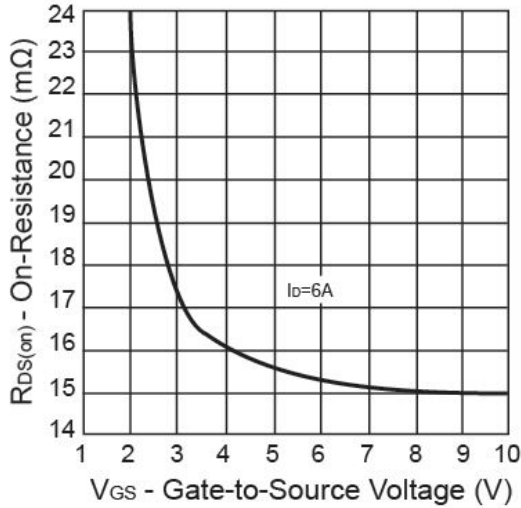


Source-Drain Diode Forward Voltage

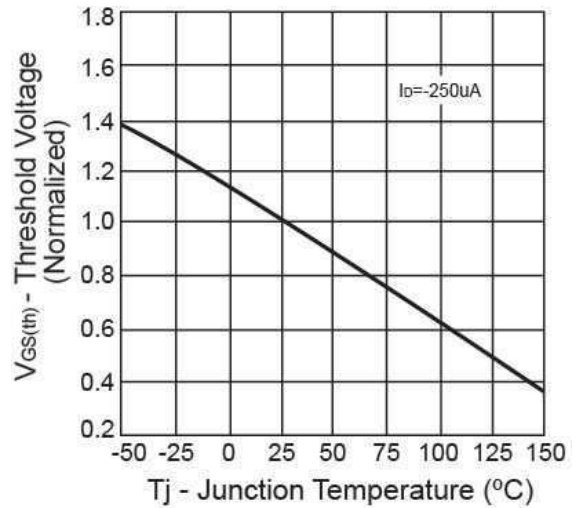


Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

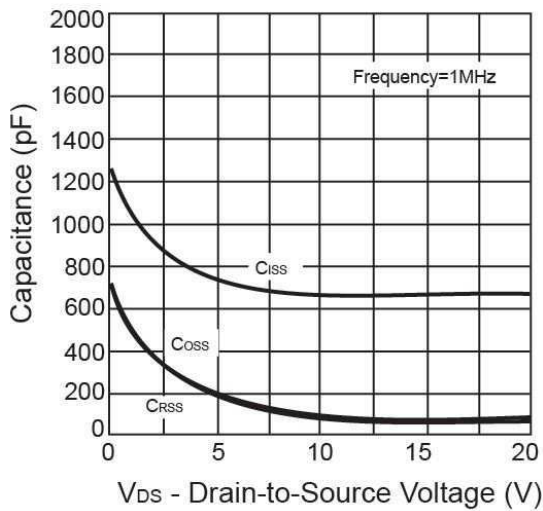
On-Resistance vs. Gate-Source Voltage



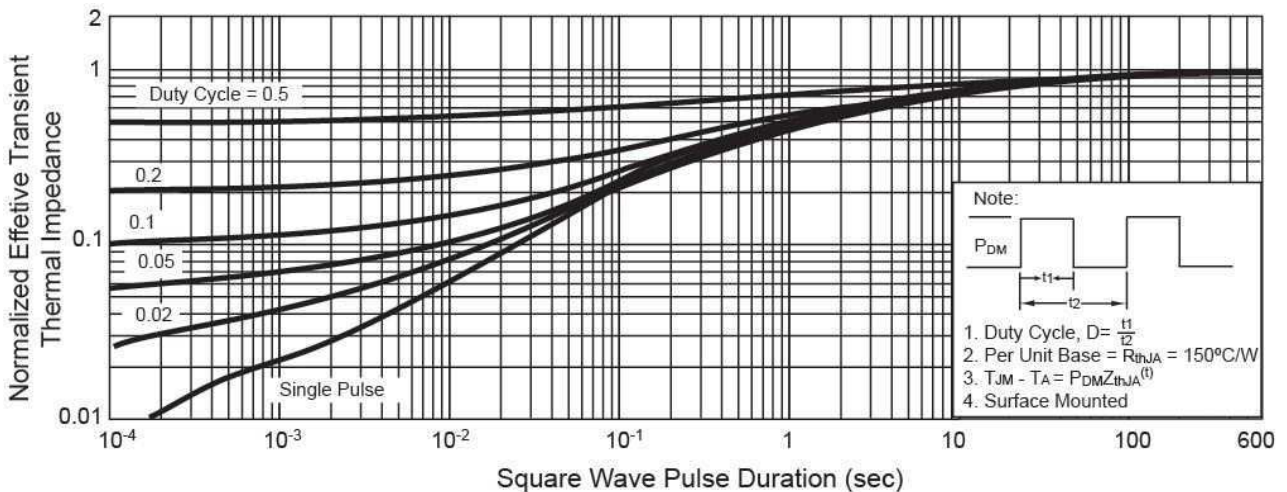
Threshold Voltage



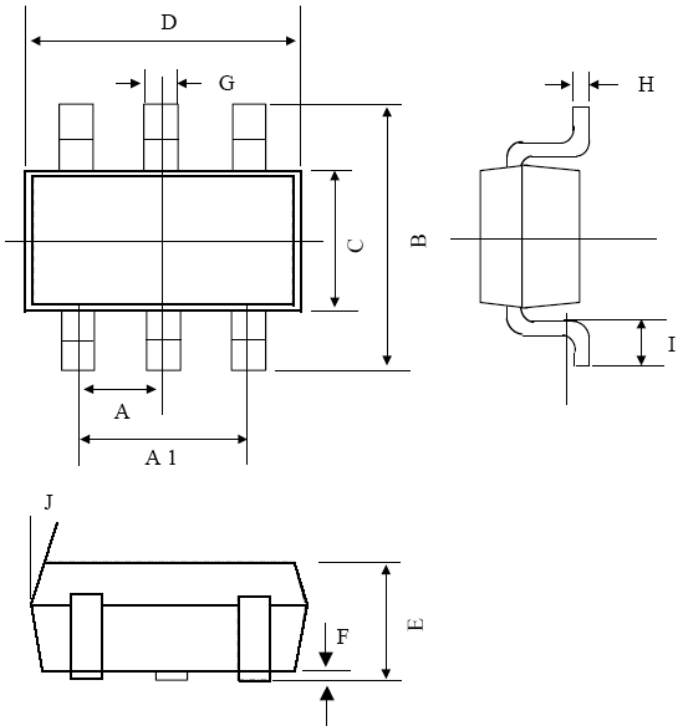
Capacitance



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°

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