

Pin Definition:

1. Source	8. Drain
2. Source	7. Drain
3. Source	6. Drain
4. Gate	5. Drain

PRODUCT SUMMARY

V _{DS} (V)	R _{DS(on)} (mΩ)	I _D (A)
-30	5.2 @ V _{GS} = -10V	-17
	9.5 @ V _{GS} = -4.5V	

Features

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

Application

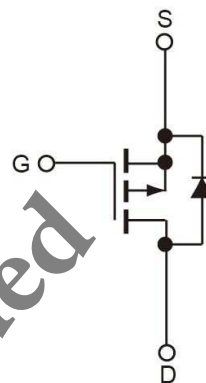
- DC-DC Converter
- Battery Power System

Ordering Information

Part No.	Package	Packing
TSM4459CS RLG	SOP-8	2.5Kpcs / 13" Reel

Note: "G" denote for Halogen Free Product

Block Diagram



P-Channel MOSFET

Absolute Maximum Rating (T_A = 25°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	T _A = 25°C	-17
		T _A = 70°C	-13.6
Pulsed Drain Current	I _{DM}	-68	A
Maximum Power Dissipation ^{Note a.}	P _D	T _A = 25°C	2.5
		T _A = 70°C	1.6
Operating Junction Temperature	T _J	+150	°C
Operating Junction and Storage Temperature Range	T _J , T _{STG}	- 55 to +150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Junction to Ambient Thermal Resistance ^{Note a.}	R _{θJA}	50	°C/W

Notes:

a. The Device Surface Mounted on 1inch² FR4 Board with 2oz copper.

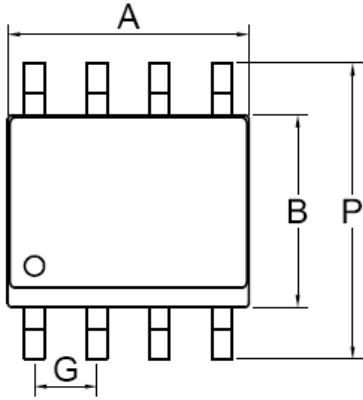
Electrical Specifications ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	BV_{DSS}	-30	--	--	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	$V_{GS(TH)}$	-1	--	-3	V
Gate Body Leakage	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$	I_{DSS}	--	--	-1.0	μA
Drain-Source On-State Resistance ^a	$V_{GS} = -10\text{V}, I_D = -9\text{A}$	$R_{DS(ON)}$	--	4	5.2	m Ω
	$V_{GS} = -4.5\text{V}, I_D = -9\text{A}$		--	7	9.5	
Diode Forward Voltage	$I_S = -18\text{A}, V_{GS} = 0\text{V}$	V_{SD}	--	0.8	--	V
Dynamic						
Total Gate Charge	$V_{DS} = -24\text{V}, I_D = -17\text{A},$ $V_{GS} = -4.5\text{V}$	Q_g	--	78.4	--	nC
Gate-Source Charge		Q_{gs}	--	25.1	--	
Gate-Drain Charge		Q_{gd}	--	38.7	--	
Gate Resistance	$f = 1.0\text{MHz}$	R_g	--	2.88	--	Ω
Input Capacitance	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V},$ $f = 1.0\text{MHz}$	C_{iss}	--	6205	--	pF
Output Capacitance		C_{oss}	--	963	--	
Reverse Transfer Capacitance		C_{rss}	--	330	--	
Switching						
Turn-On Delay Time	$V_{DD} = -15\text{V}, R_G = 15\Omega,$ $V_{GEN} = -10\text{V},$ $R_G = 4.7\Omega$	$t_{d(on)}$	--	75.2	--	nS
Turn-On Rise Time		t_r	--	33.8	--	
Turn-Off Delay Time		$t_{d(off)}$	--	275	--	
Turn-Off Fall Time		t_f	--	92.1	--	

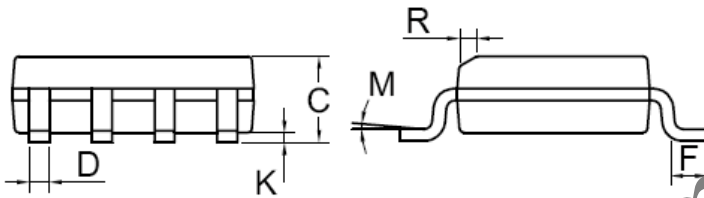
Notes:

a. pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$

SOP-8 Mechanical Drawing



SOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.05 BSC	
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019



Not Recommended

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