

Product Summary

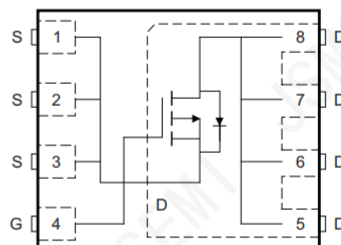
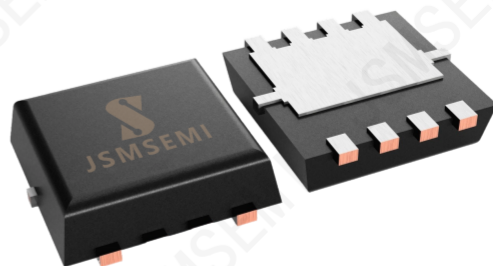
- V_{DS} -30V
- I_D -40A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <15m Ω
- 100% EAS Tested
- 100% ∇V_{DS} Tested

General Description

- Trench Power MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers



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

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A=25^\circ\text{C}$	I_D	-40	A
	$T_A=100^\circ\text{C}$		-25	A
Pulsed Drain Current ^C		I_{DM}	-140	A
Power Dissipation ^B	$T_A=25^\circ\text{C}$	P_D	31	W
	$T_A=100^\circ\text{C}$		19	W
Maximum Junction-to-Ambient		$R_{\theta JA}$	4.03	$^\circ\text{C/W}$
Operation Junction Temperature Range		T_J	150	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 to 150	$^\circ\text{C}$

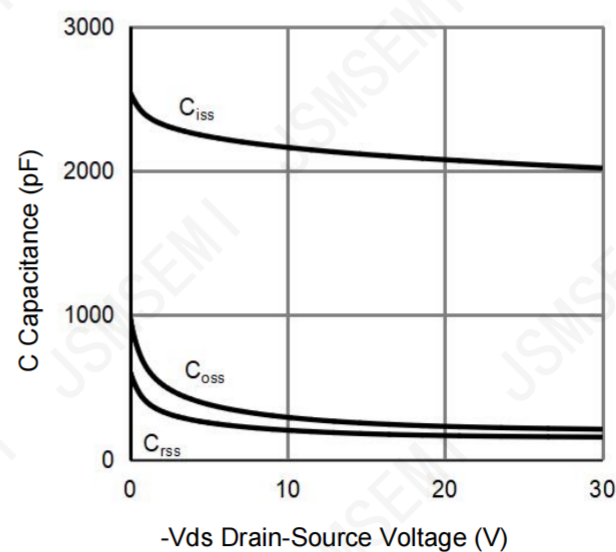
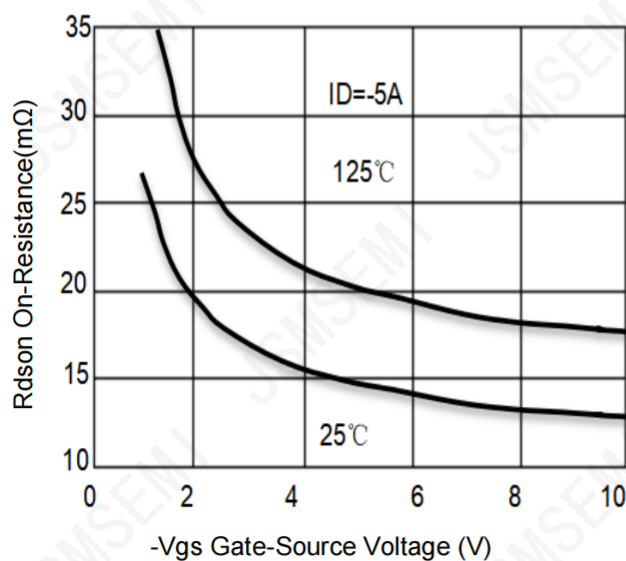
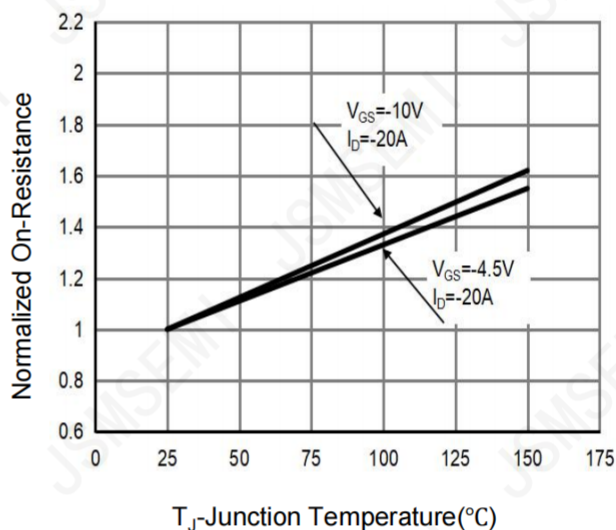
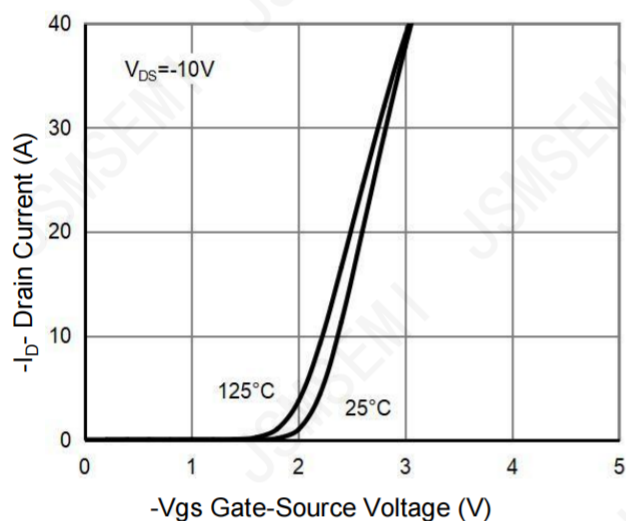
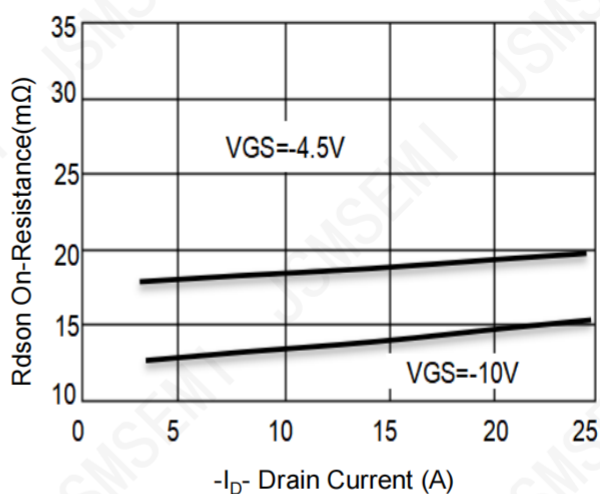
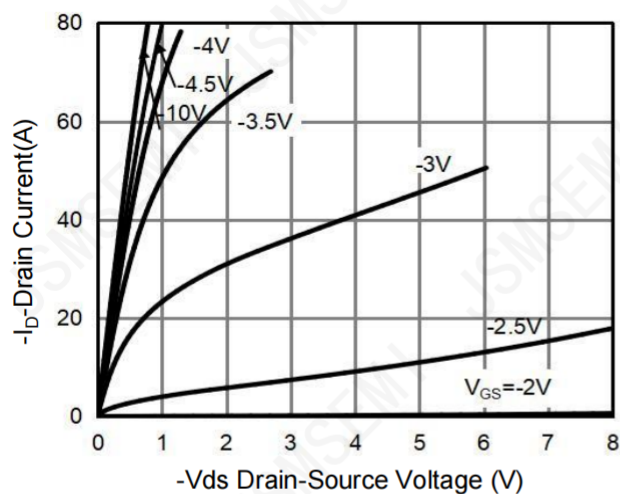
Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
JSM7409C	DFN3333-8L	JSM7409	-55 to 150 $^\circ\text{C}$	1	T&R, 5000	Rohs

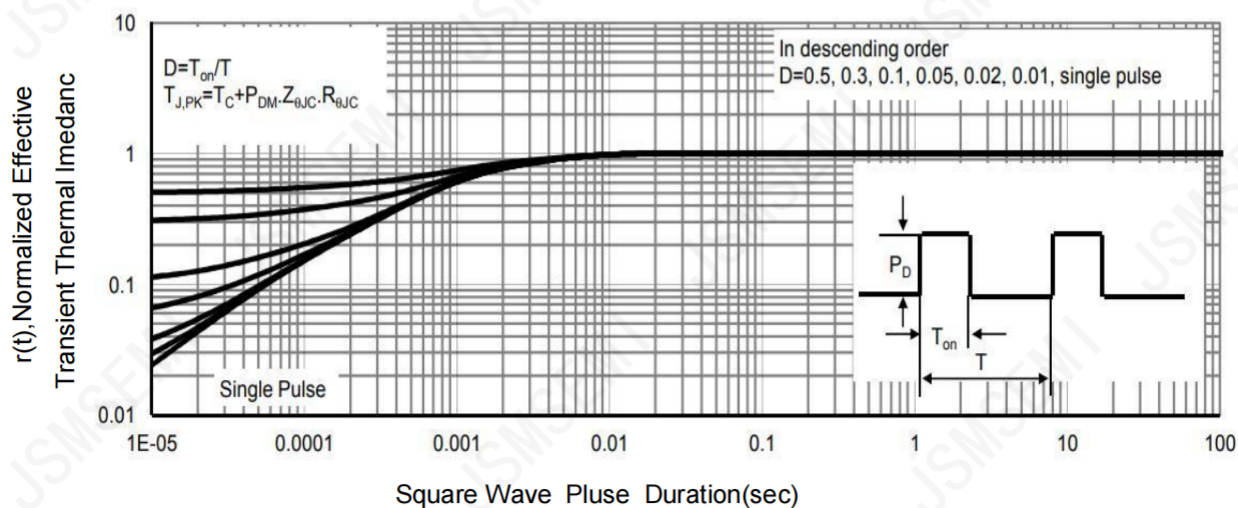
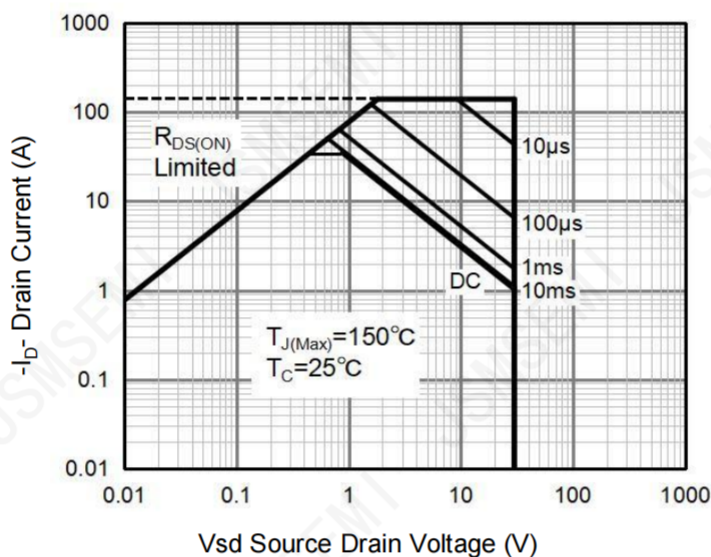
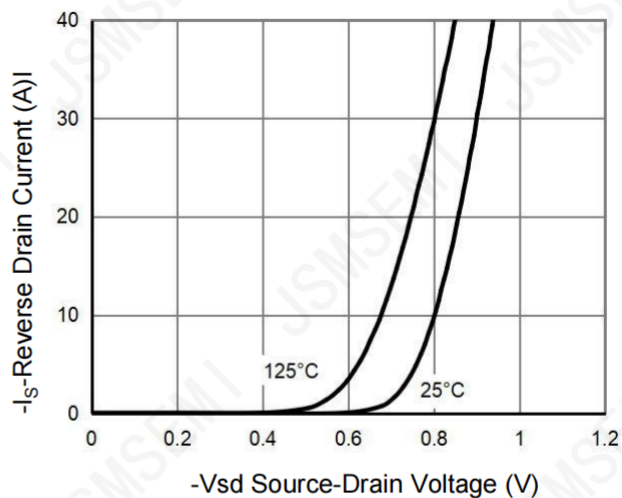
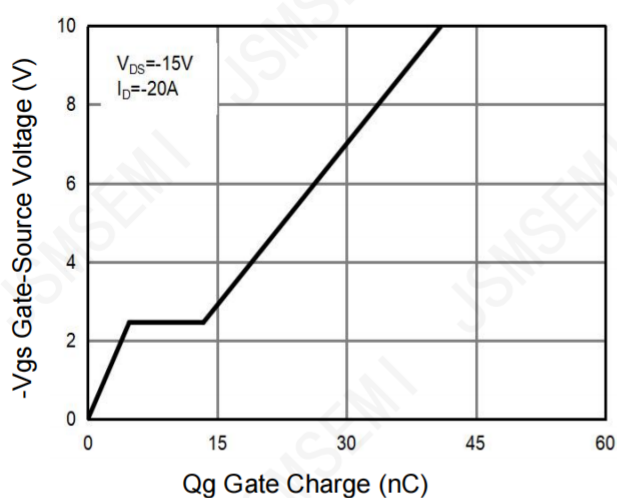
Electrical Characteristics (TJ=25° C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Stactrical Parameter						
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D = -250\mu A, V_{GS} = 0V$	-30			V
I_{GSS}	Gate-Body leakage current	$V_{DS} = 0V, V_{GS} = \pm 20V$			100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V$			1	μA
		TJ=55° C			5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.1	-1.5	-2.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS} = -10V, I_D = -15A$		12	15	m Ω
	Static Drain-Source On-Resistance	$V_{GS} = -4.5V, I_D = -10A$		17	20	m Ω
Diode Characteristics						
V_{SD}	Diode Forward voltage	$I_S = -1.0A, V_{GS} = 0V$		-0.7	-1.2	V
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		2105		pF
C_{oss}	Output Capacitance	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		248		pF
C_{rss}	Reverse Transfer Capacitance	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		175		pF
R_g	Gate resistance	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		8.5		Ω
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -15V, R_L = 2.7\Omega$ $V_{GS} = -10V, R_{GEN} = 3\Omega$		13		nS
t_r	Turn-on Rise Time			12		nS
$t_{d(off)}$	Turn-off Delay Time			30		nS
t_f	Turn-off Fall Time			15		nS
Q_g	Total Gate Charge	$V_{DS} = -15V, I_D = -5.8A, V_{GS} = -4.5V$		41		nC
Q_{gs}	Gate-Source Charge			4.8		nC
Q_{gd}	Gate-Drain Charge			8.6		nC

TYPICAL CHARACTERISTICA Description

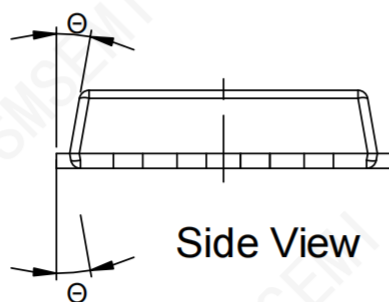
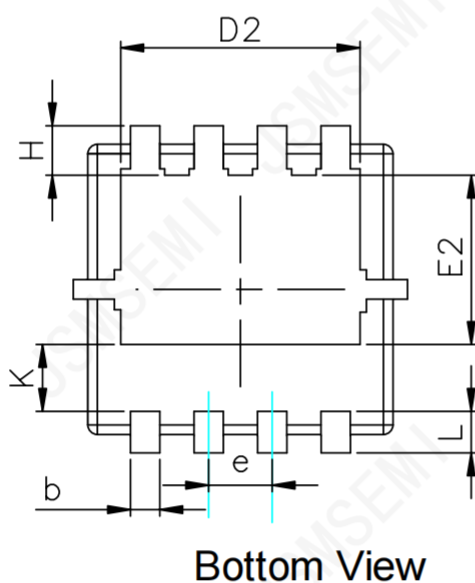
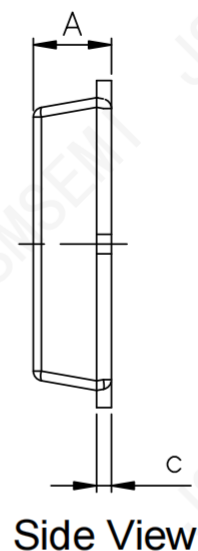
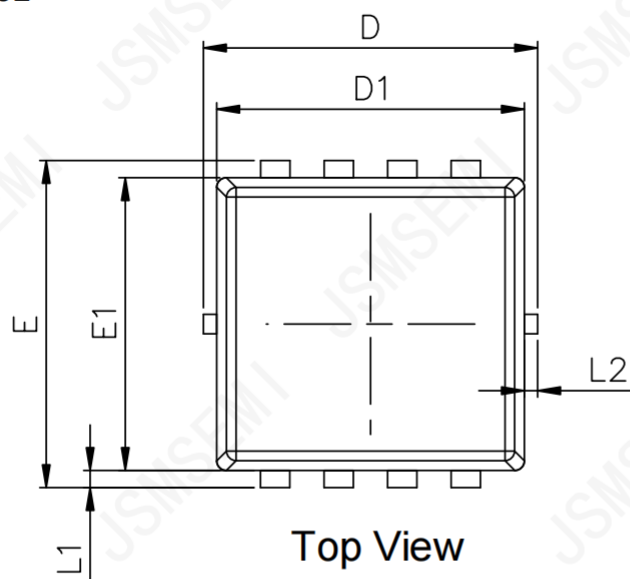


TYPICAL CHARACTERISTICA Description



Package Information

PDFN3333-8L



SYMBOL	MIN	NOM	MAX
A	0.70	0.80	0.90
b	0.20	0.30	0.40
c	0.14	0.15	0.25
D	3.20	3.30	3.40
D1	3.00	3.15	3.30
D2	2.35	2.45	2.55
e	0.65 BSC		
E	3.25	3.35	3.45
E1	2.85	3.00	3.15
E2	1.635	1.735	1.835
H	0.41	0.56	0.71
K	0.585	0.685	0.785
L	0.30	0.40	0.50
L1	0.05	0.15	0.25
L2	—	—	0.15
Θ	8°	10°	12°

COMMON DIMENSIONS
(UNITS OF MEASURE = MILLIMETER)

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

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