

P-Channel 30-V (D-S) MOSFET

Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
-30	28 @ $V_{GS} = -10V$	-6
	48 @ $V_{GS} = -4.5V$	-4

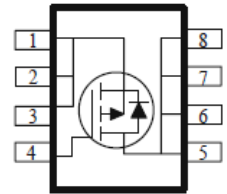
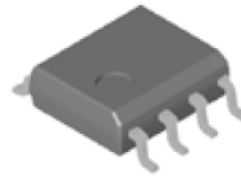
Typical Applications:

- Load Switches
- DC/DC Conversion
- Motor Drives



RoHS
COMPLIANT
HALOGEN
FREE

SO-8



ORDERING INFORMATION

Device	Marking	Shipping
LP4433T1G	LP4433	4000/Tape&Reel

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	-8	A
	$T_A=70^\circ\text{C}$	-6	
Pulsed Drain Current ^b	I_{DM}	-38	
Continuous Source Current (Diode Conduction) ^a	I_S	-1.8	A
Power Dissipation ^a	$T_A=25^\circ\text{C}$	3.1	W
	$T_A=70^\circ\text{C}$	2.2	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	t ≤ 10 sec	R _{θJA}	40	°C/W
	Steady State		80	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

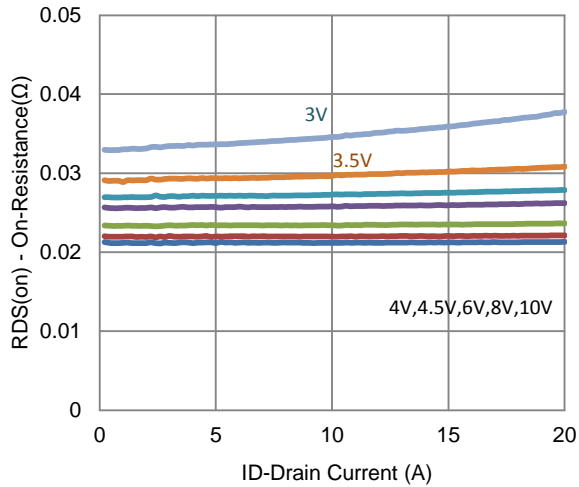
Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 uA	-1	-1.6	-3	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24 V, V _{GS} = 0 V			-1	uA
		V _{DS} = -24 V, V _{GS} = 0 V, T _J = 55°C			-10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -10 V	-20			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = -10 V, I _D = -6 A		22	28	m
		V _{GS} = -4.5 V, I _D = -4A		35	48	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -7 A		8		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1 A, V _{GS} = 0 V			-1.5	V
Dynamic ^b						
Total Gate Charge	Q _g	V _{DS} = -15 V, V _{GS} = -4.5 V, I _D = -7 A		18		nC
Gate-Source Charge	Q _{gs}			4.2		
Gate-Drain Charge	Q _{gd}			7.4		
Turn-On Delay Time	t _{d(on)}	V _{DS} = -15 V, R _L = 2.1 Ω, I _D = -7 A, V _{GEN} = -10 V, R _{GEN} = 6 Ω		6		ns
Rise Time	t _r			5		
Turn-Off Delay Time	t _{d(off)}			55		
Fall Time	t _f			21		
Input Capacitance	C _{iss}	V _{DS} = -15 V, V _{GS} = 0 V, f = 1 Mhz		1539		pF
Output Capacitance	C _{oss}			163		
Reverse Transfer Capacitance	C _{rss}			151		

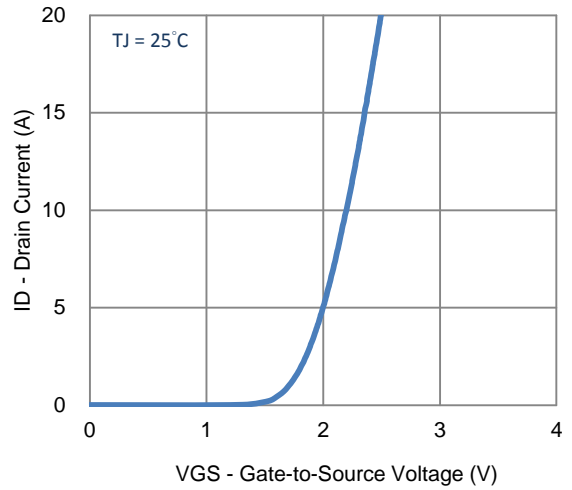
Notes

- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

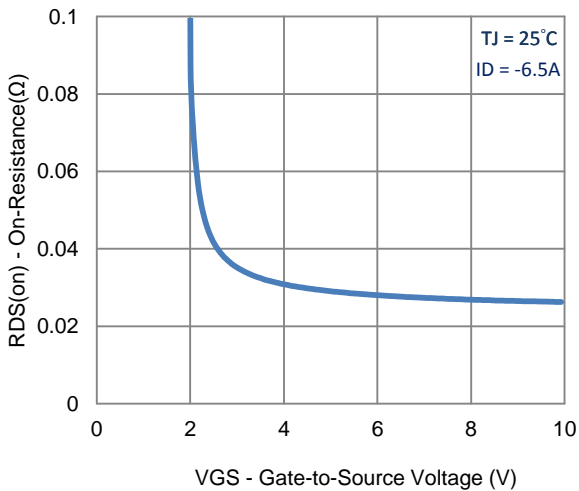
Typical Electrical Characteristics



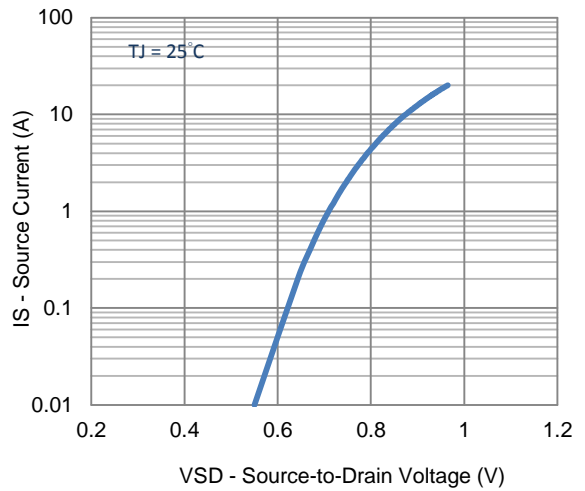
1. On-Resistance vs. Drain Current



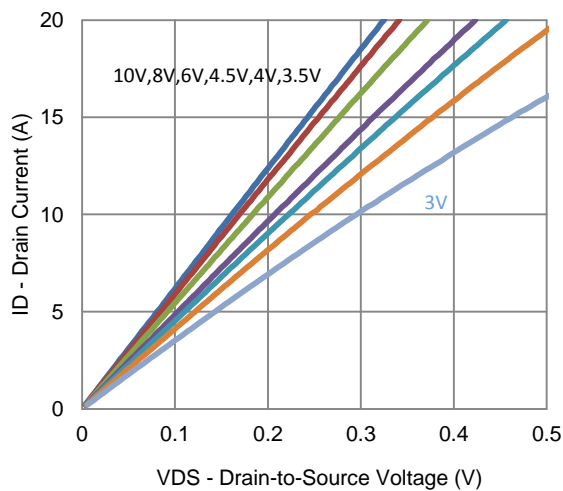
2. Transfer Characteristics



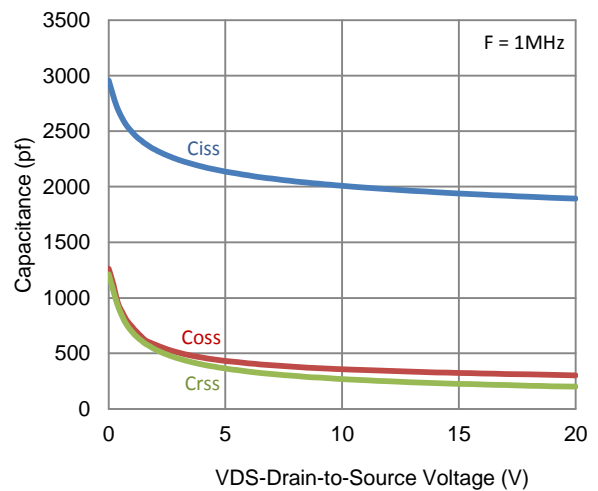
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

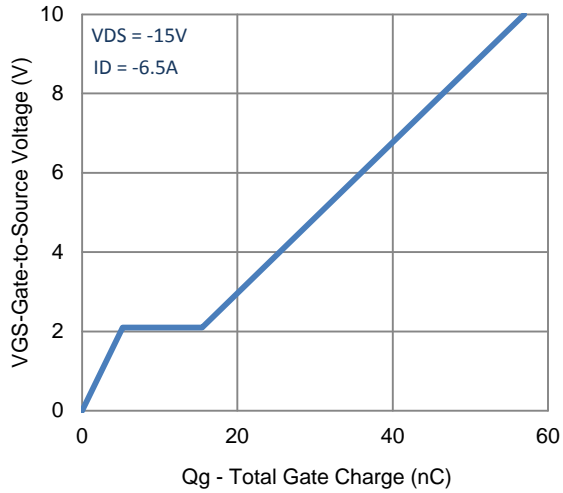


5. Output Characteristics

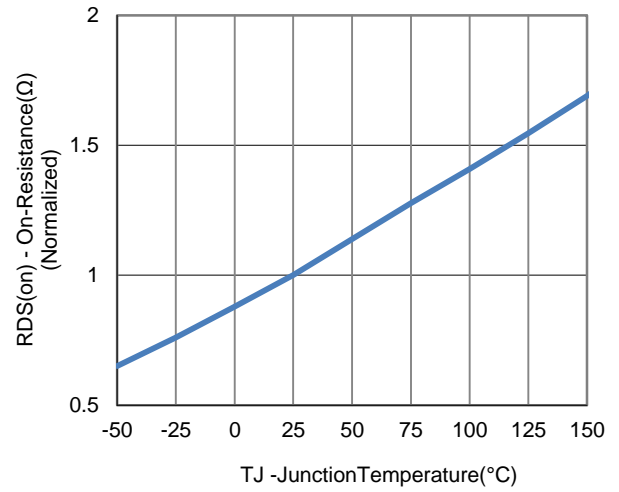


6. Capacitance

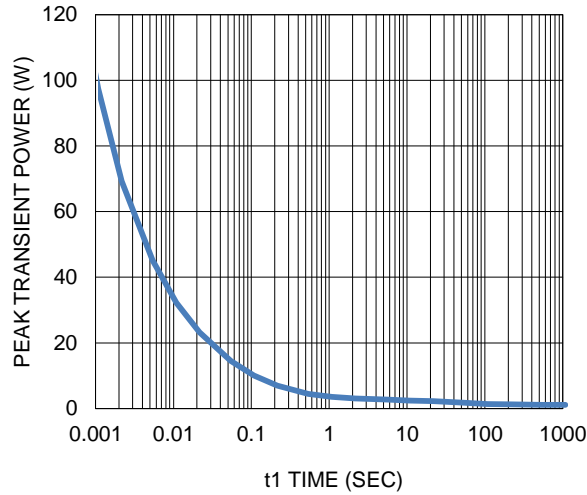
Typical Electrical Characteristics



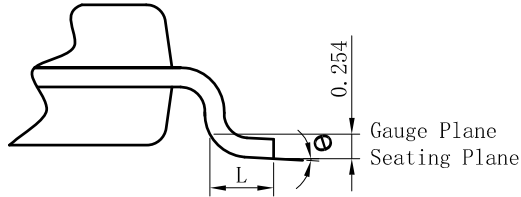
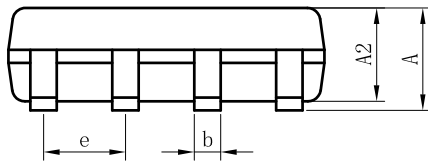
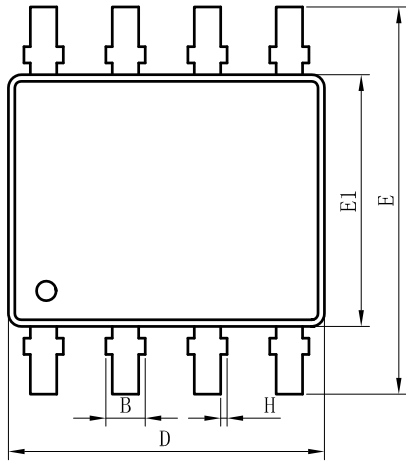
7. Gate Charge



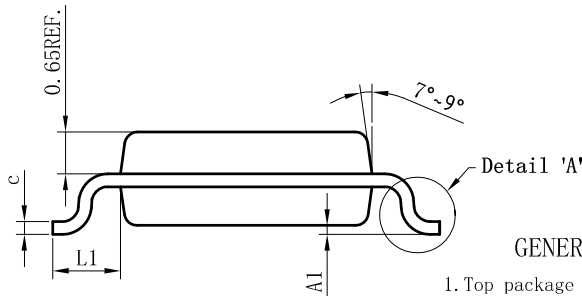
8. Normalized On-Resistance Vs Junction Temperature



9. Single Pulse Maximum Power Dissipation

OUTLINE AND DIMENSIONS
SOP8


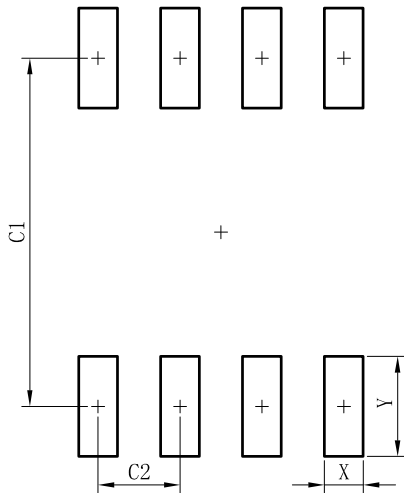
Detail 'A'



SOP8			
DIM	MIN	NOR	MAX
A	-	-	1.75
A1	0.10	0.15	0.20
A2	1.35	1.45	1.55
b	0.33	0.42	0.51
c	0.15	0.22	0.29
D	4.77	4.90	5.03
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
L	0.46	0.66	0.86
L1	0.85	1.05	1.25
θ	0°	5°	8°
B	-	-	0.55
H	0	0.05	0.10
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um
4. Package Body Sizes Exclude Mold Flash, Protrusion Or Gate Burrs. Mold Flash, Protrusion Or Gate Burrs Shall Not Exceed 0.10 mm Per Side.
5. Dimension "b" Does Not Include Dambar Protrusion.

SOLDERING FOOTPRINT


SOP8	
DIM	(mm)
X	0.60
Y	1.55
C1	5.40
C2	1.27