WANSEMI
万代半导体

WP4459

Enhancement Mode P-Channel Power MOSFET

SOP8/PMOS/-30V/±20V/-1.4V/-6.5A/19.5mΩ

Rev0.6

-30V, 19.5mΩ, -6.5A, P-Channel MOSFET

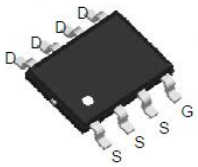
1.Features

- High power and current handing capability
- Surface mount package

V_{DS}	$R_{DS(on)}$ Max.	I_D.
-30V	19.5mΩ @ -10V	-6.5A
	27mΩ @ -4.5V	

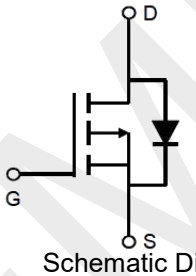
2.Applications

- Power Management
- Load Switching



SOP8

Pin Description



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Tube	PCS/CTN.
WP4459	4459	SOP8	4,000	48,000

4.Absolute Max Ratings at Ta=25℃ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	-30	V
Gate to Source Voltage	V_{GSS}	±20	V
Drain Current (DC)	I_D	-6.5	A
Drain Current (Pulse), PW≤300μs	I_{DP}	-30	A
Total Dissipation	P_D	3.1	W
Junction Temperature	T_j	150	℃
Storage Temperature	T_{stg}	-55 to +150	℃

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

5.Thermal Resistance Ratings (Note 2)

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	31	℃/W

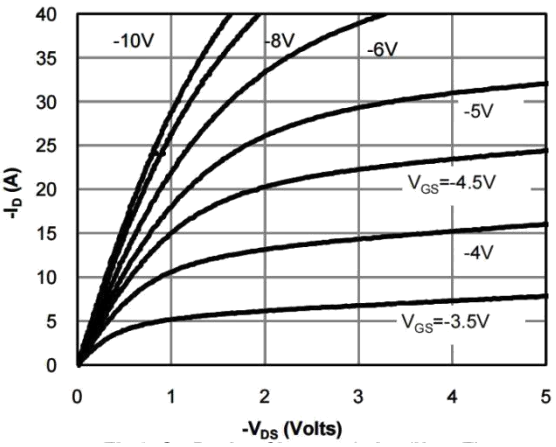
Note 2： When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

6.Electrical Characteristics at Ta=25℃ (Note 3)

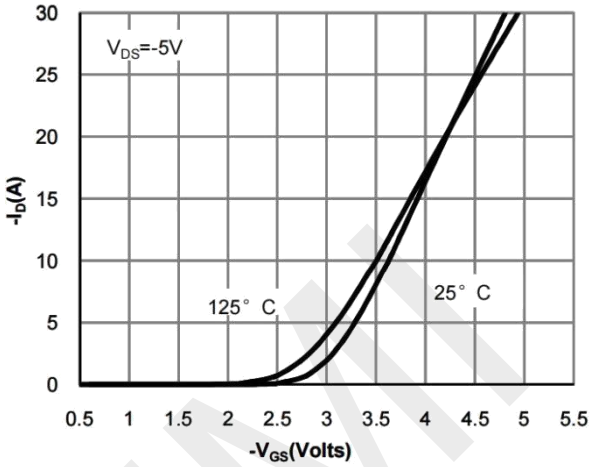
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = -250μA, V_{GS} = 0V	-30	-34		V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS} = -30V, V_{GS} = 0V			-1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-1	-1.4	-2.5	V
On state drain current	$I_{D(ON)}$	V_{GS} = -10V, V_{DS} = -5V	-30			A
Static Drain to Source On-State Resistance	$R_{DS(on)}$	I_D =-7A, V_{GS} =-10V		19.5	25	mΩ
		I_D =-4A, V_{GS} = -4.5V		27	35	mΩ
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, Frequency=1.0MHz		525		pF
Output Capacitance	C_{oss}			95		pF
Reverse Transfer Capacitance	C_{rss}			60		pF
Turn-ON Delay Time	$t_{d(on)}$	V_{DS} =-15V, V_{GS} =-10V, R_{GEN} = 3Ω, R_L = 2.5Ω		7.6		ns
Rise Time	t_r			5.8		ns
Turn-OFF Delay Time	$t_{d(off)}$			20		ns
Fall Time	t_f			7		ns
Total Gate Charge	Q_g	V_{DS} = -15V, V_{GS} = -10V, I_D = -6.5A		9		nC
	Q_{gs}			4.5		nC
	Q_{gd}			2.5		nC
Diode Forward Voltage	V_{FSD}	I_S = -1A, V_{GS} = 0		-0.8	-1.2	V

Note 3： Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

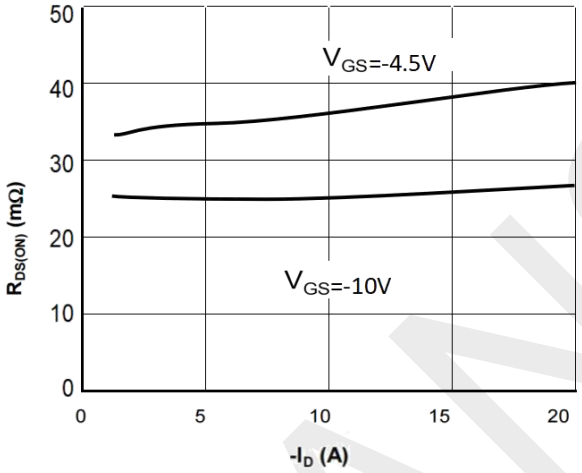
7.Typical Electrical and Thermal Characteristics



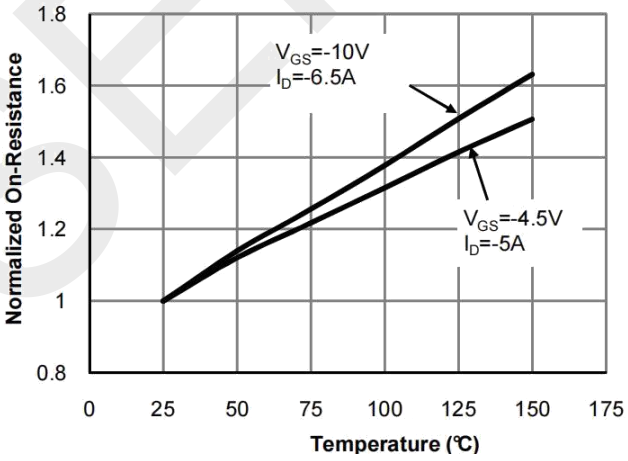
On-Region Characteristics



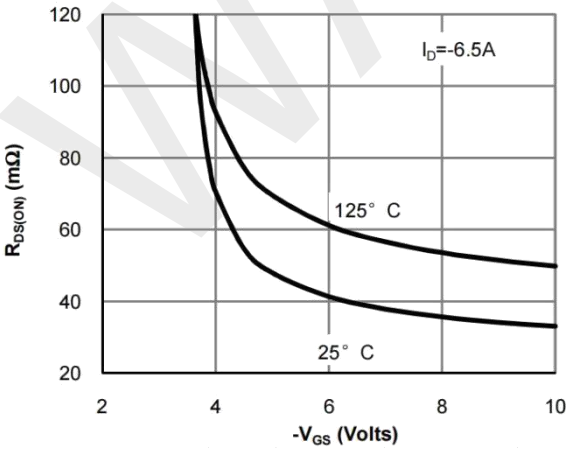
Transfer Characteristics



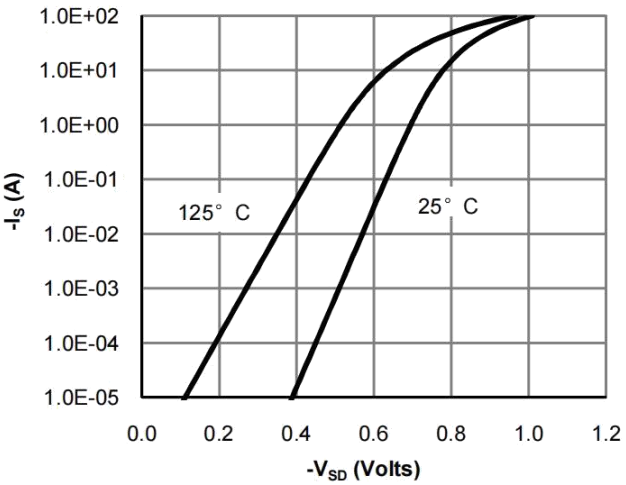
On-Resistance vs. Drain Current and Gate Voltage



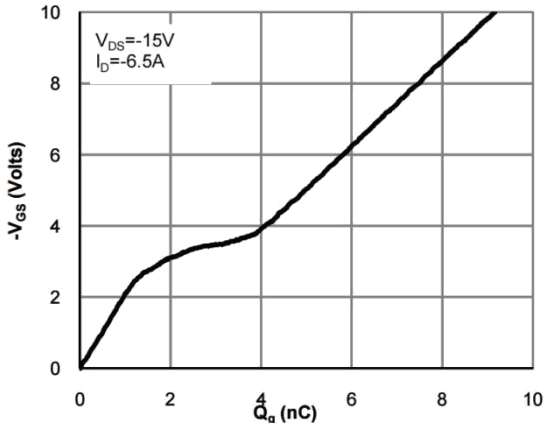
On-Resistance vs. Junction Temperature



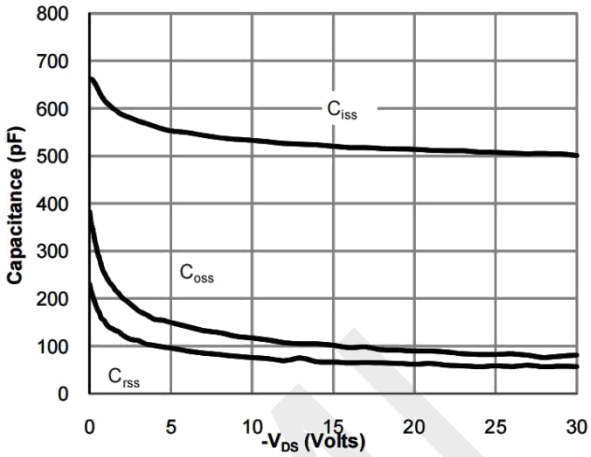
On-Resistance vs. Gate-Source Voltage



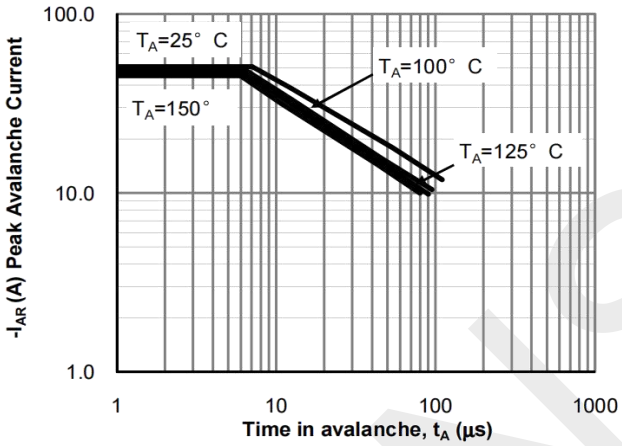
Body-Diode Characteristics



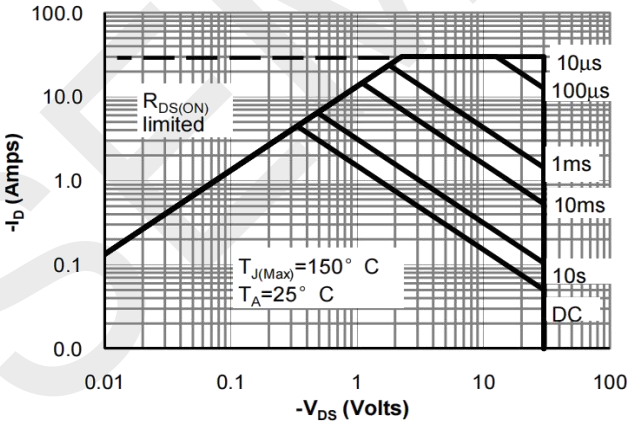
Gate-Charge Characteristics



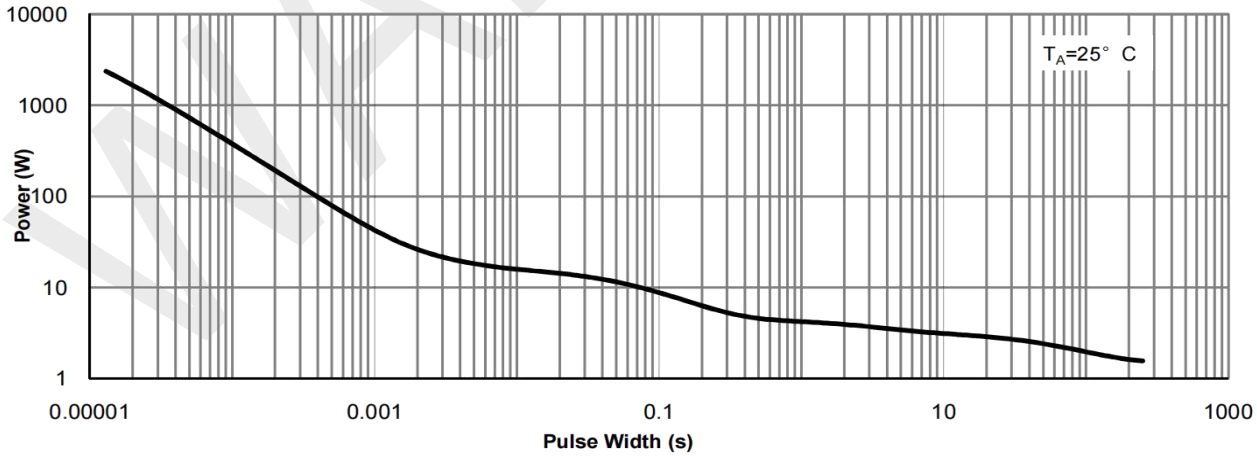
Capacitance Characteristics



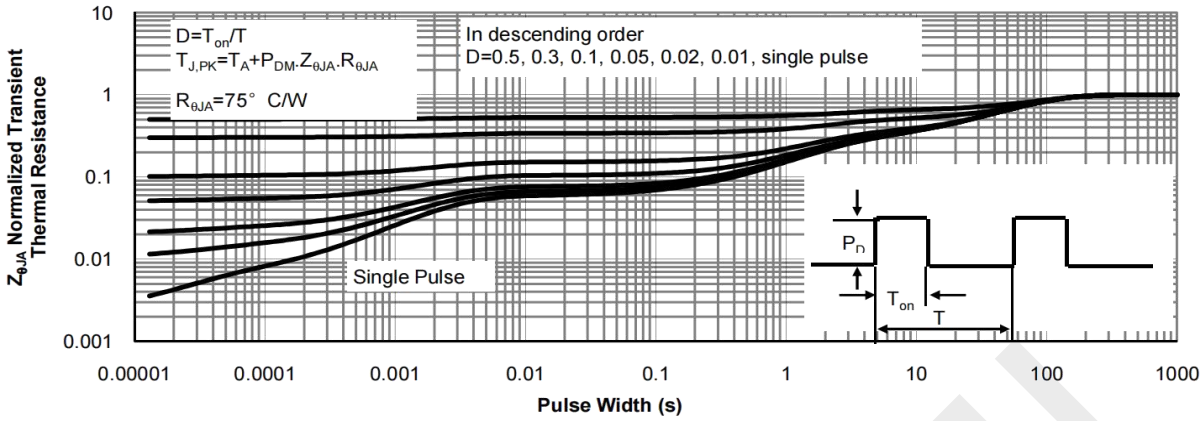
Single Pulse Avalanche capability



Maximum Forward Biased Safe Operating Area

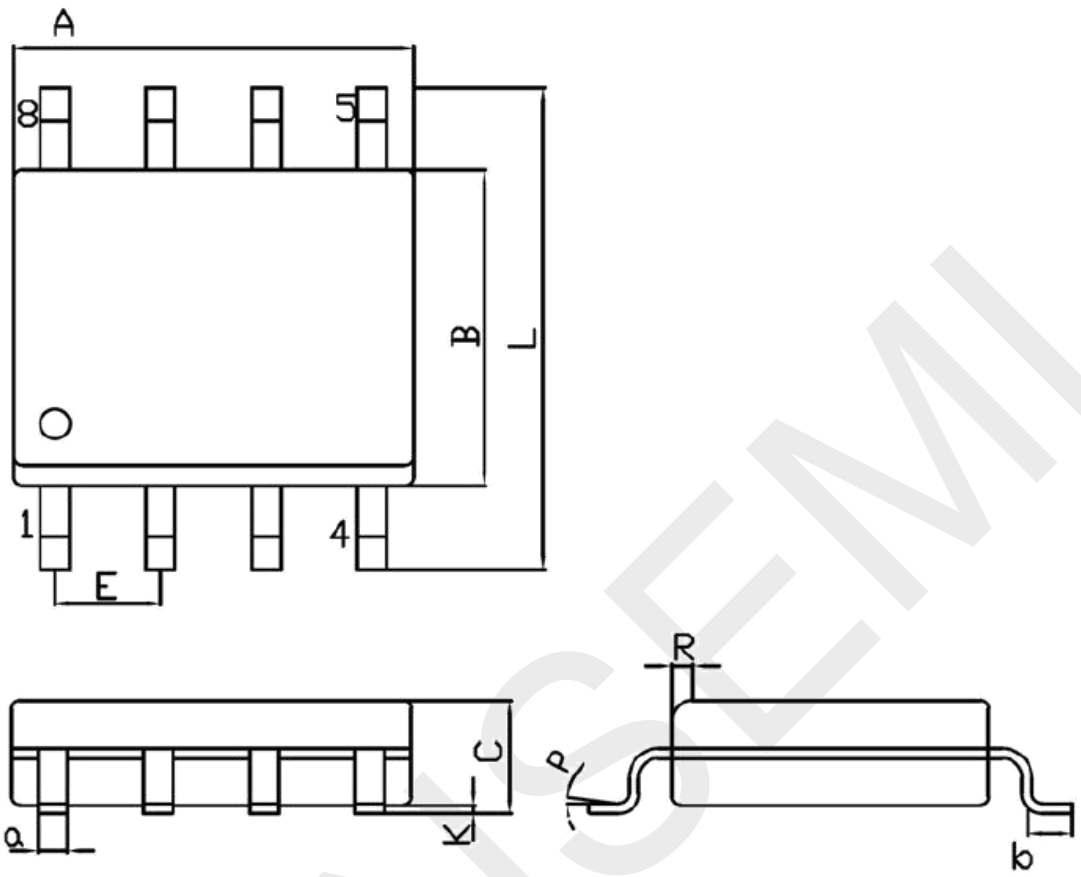


Single Pulse Power Rating Junction-to-Ambient



Normalized Maximum Transient Thermal Imp

8.Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	a	0.35	0.49
L	5.80	6.20	R	0.30	0.60
E	1.27BSC		P	0°	7°
K	0.12	0.22	b	0.40	1.25

9.Important Notice

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