

## -30V, 25mΩ, -6.5A, P-Channel MOSFET

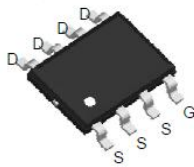
### 1.Features

- ◆ High power and current handling capability
- ◆ Surface mount package

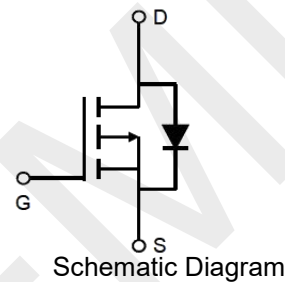
### 2.Applications

- ◆ Power Management
- ◆ Load Switching

$V_{DS}$	$R_{DS(on)}$ Max.	$I_D$
-30V	25mΩ @ -10V	-6.5A
	35mΩ @ -4.5V	



SOP8  
Pin Description



### 3.Absolute Max Ratings at Ta=25°C (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	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

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.

### 4.Thermal Resistance Ratings (Note 2)

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

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

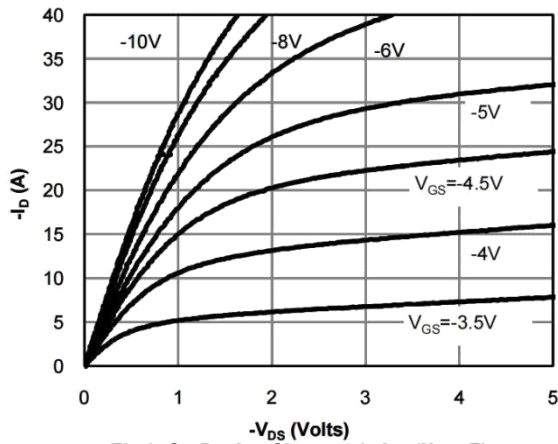
**5. Electrical Characteristics at Ta=25°C (Note 3)**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -250\mu A, V_{GS} = 0V$	-30	-34		V	
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$			-1	$\mu A$	
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-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	$R_{DS(on)}$	$I_D = -6.5A, V_{GS} = -10V$		25	49	m $\Omega$	
		$I_D = -5A, V_{GS} = -4.5V$		35	74	m $\Omega$	
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	$t_{d(on)}$				7.6		ns
Rise Time	$t_r$		$V_{DS} = -15V, V_{GS} = -10V,$ $R_{GEN} = 3\Omega, R_L = 2.5\Omega$		5.8		ns
Turn-OFF Delay Time	$t_{d(off)}$			20		ns	
Fall Time	$t_f$				7		ns
Total Gate Charge	$Q_g$	$V_{DS} = -15V,$			9		nC
	$Q_{gs}$	$V_{GS} = -10V,$		4.5		nC	
	$Q_{gd}$	$I_D = -6.5A$		2.5		nC	
Diode Forward Voltage	$V_{FSD}$	$I_S = -1A, V_{GS} = 0$		-0.8	-1.2	V	

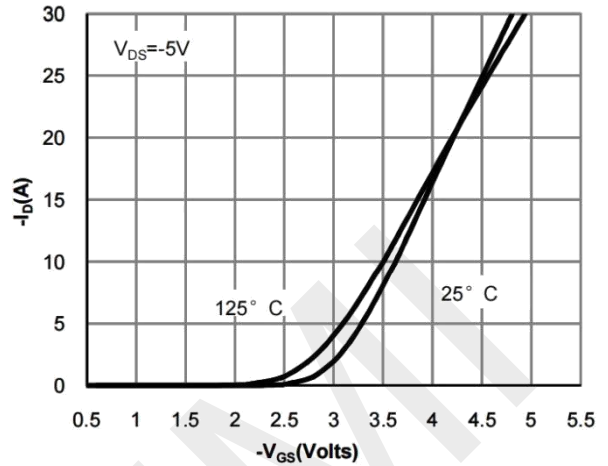
Note 3: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



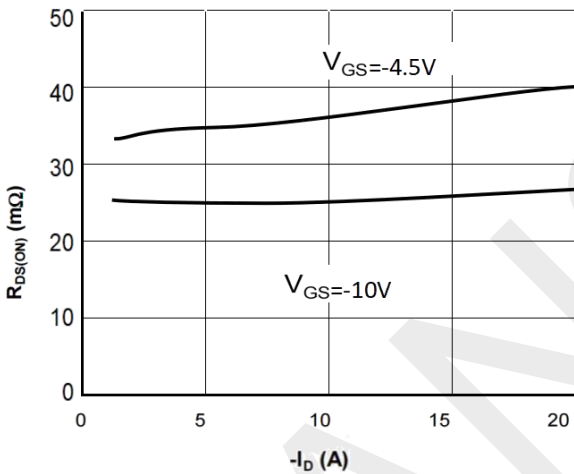
**6. Typical Electrical and Thermal Characteristics**



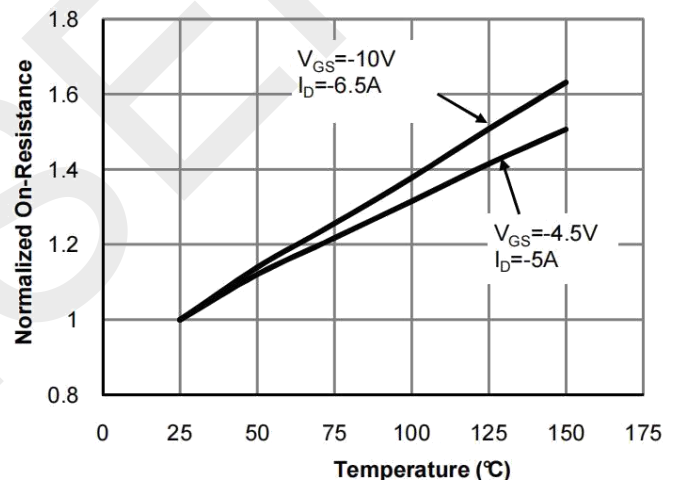
**On-Region Characteristics**



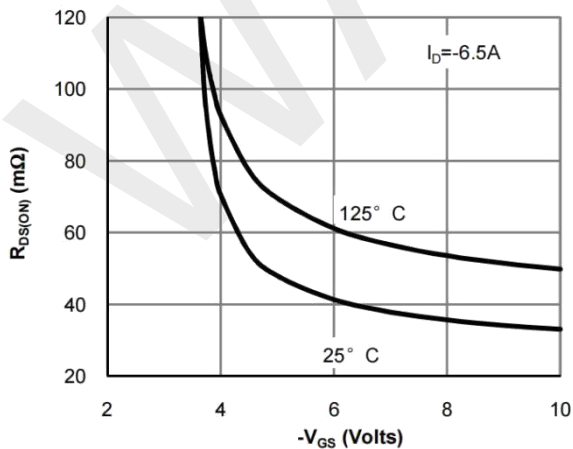
**Transfer Characteristics**



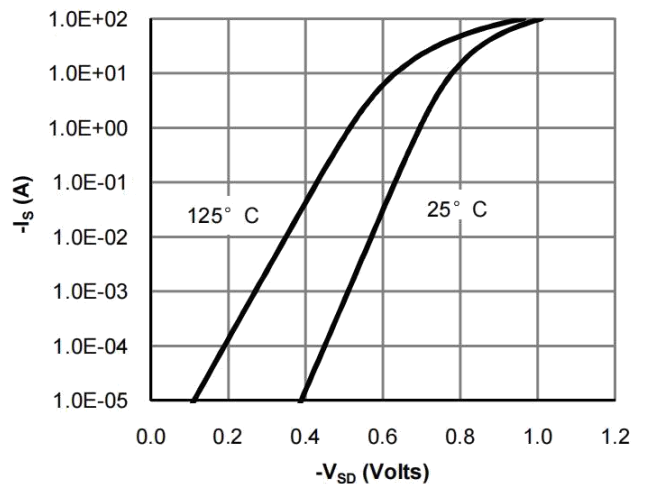
**On-Resistance vs. Drain Current and Gate Voltage**



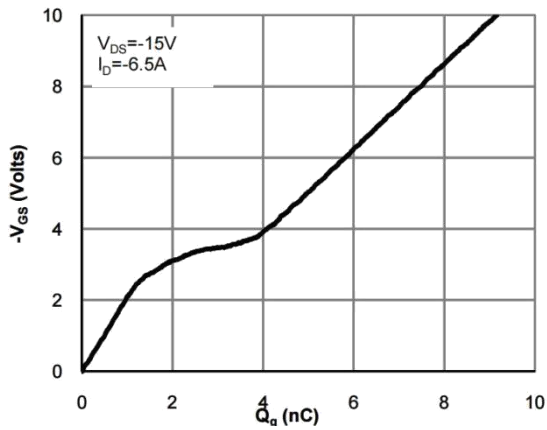
**On-Resistance vs. Junction Temperature**



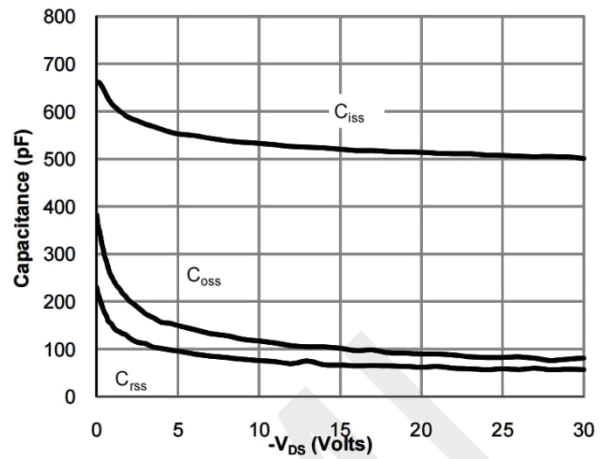
**On-Resistance vs. Gate-Source Voltage**



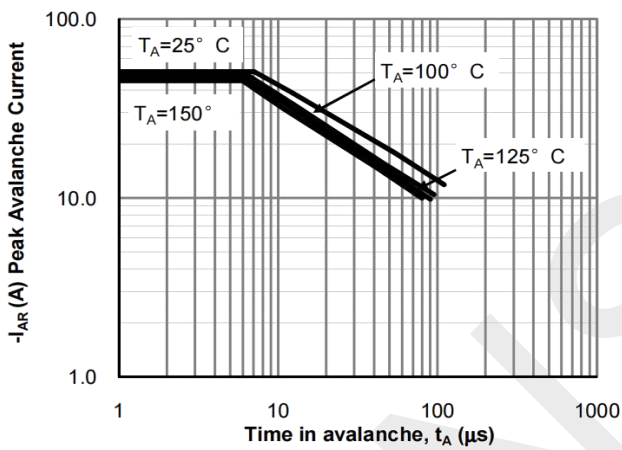
**Body-Diode Characteristics**



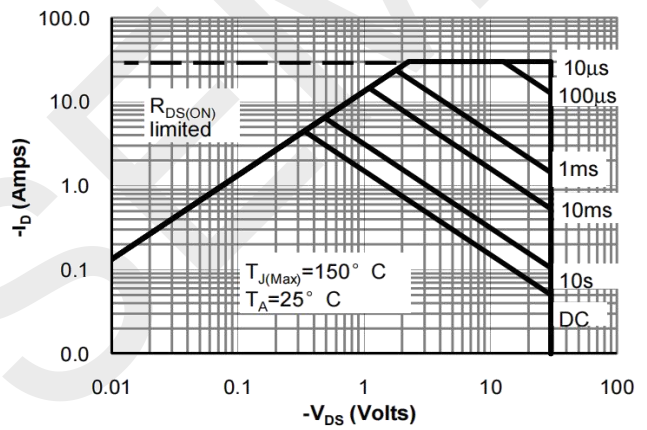
Gate-Charge Characteristics



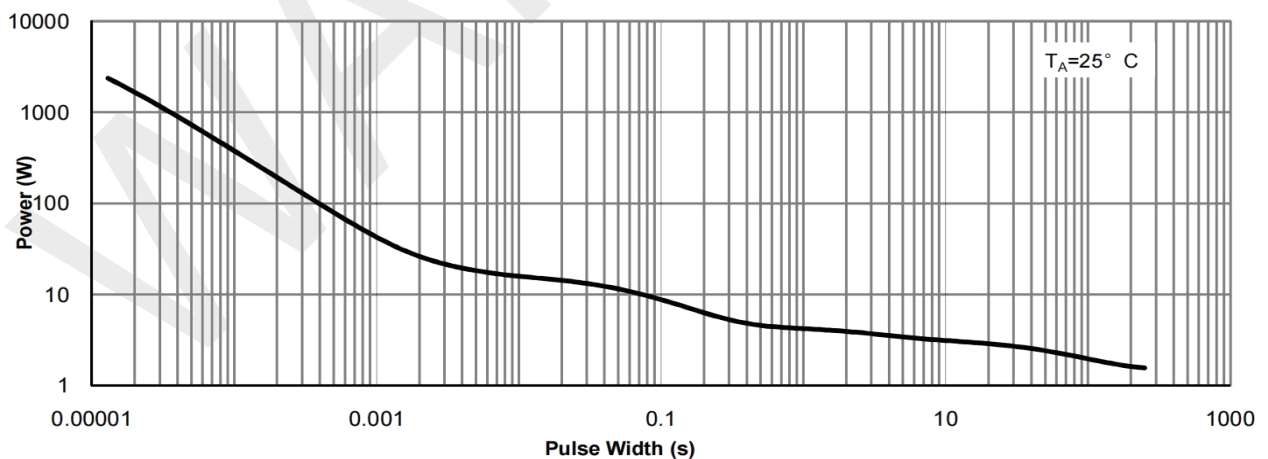
Capacitance Characteristics



Single Pulse Avalanche capability

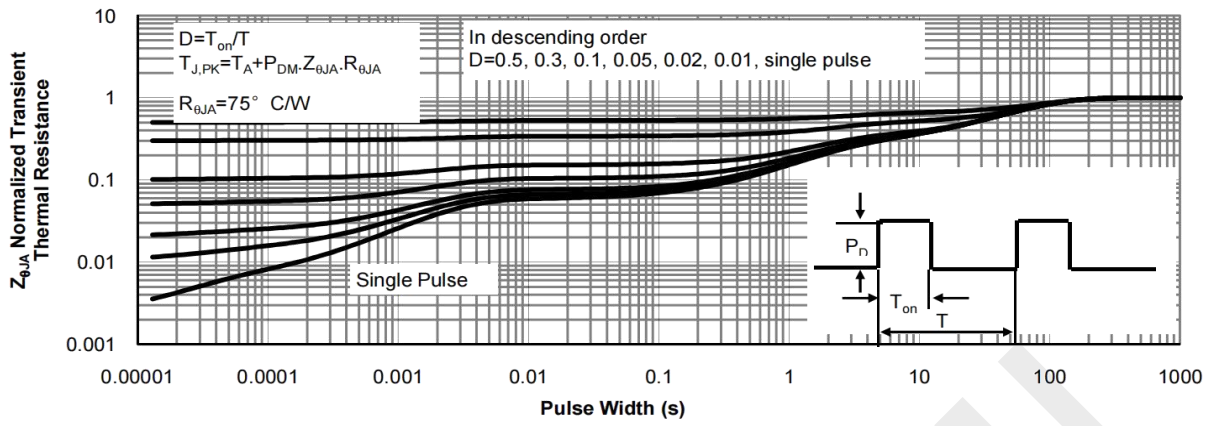


Maximum Forward Biased Safe Operating Area



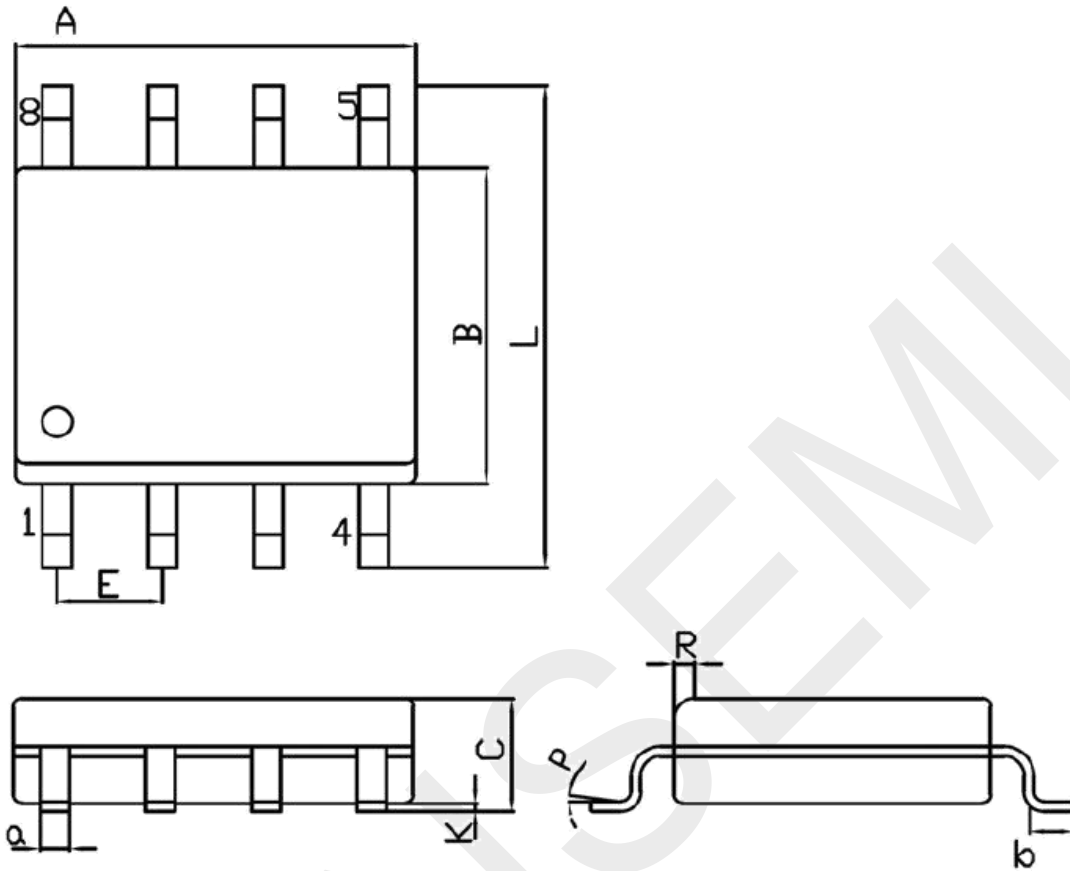
Single Pulse Power Rating Junction-to-Ambient

## 7. TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS





**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

## **8.Important Notice**

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