

## 30V, 26mΩ, 5.8A, Single N-Channel

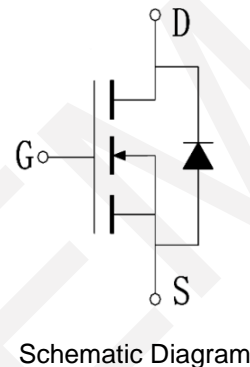
### 1.Features

- ◆ 30V MOSFET technology
- ◆ Low on-state resistance
- ◆ Fast switching
- ◆  $V_{GS} \pm 12V$

$V_{DS}$	$R_{DS(on)}$ Typ.	$I_D$ Max.
30V	23.5mΩ @ 10V	5.8A
	26mΩ @ 4.5V	
	46mΩ @ 2.5V	

### 2.Applications

- ◆ Power Switching Application
- ◆ Load Switching



### 3.Absolute Max Ratings at $T_a=25^\circ C$ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	$V_{DSS}$	29	V
Gate to Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (DC)	$I_D$	5.8	A
Drain Current (Pulse), $PW \leq 300\mu s$	$I_{DP}$	30	A
Total Dissipation	$P_D$	1.4	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$

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	$R_{\theta JA}$	89	$^\circ C/W$

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

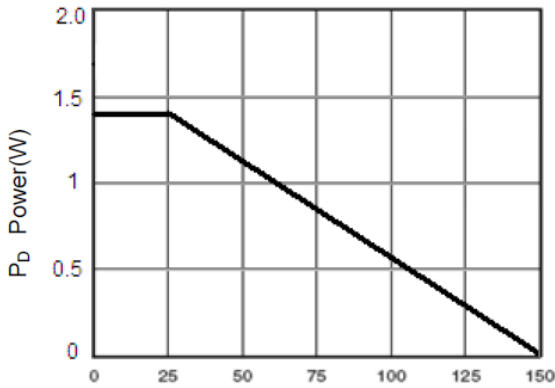
**5. Electrical Characteristics at Ta=25°C (Note 3)**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0V$	29	31.5		V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 27V, V_{GS} = 0V$			1	$\mu A$
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_{DS} = 250\mu A$	0.6	0.9	1.2	V
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = 5.8A, V_{GS} = 10V$		23.5	30	m $\Omega$
		$I_D = 5A, V_{GS} = 4.5V$		26	35	m $\Omega$
		$I_D = 3A, V_{GS} = 2.5V$		46	60	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{GS} = 0V,$ $V_{DS} = 15V,$ Frequency = 1.0MHz		820		pF
Output Capacitance	$C_{oss}$			99		pF
Reverse Transfer Capacitance	$C_{rss}$			77		pF
Turn-ON Delay Time	$t_{d(on)}$			3.3		ns
Rise Time	$t_r$	$V_{DD} = 15V, R_L = 2.7\Omega,$ $V_{GS} = 10V, R_G = 3\Omega$		4.8		ns
Turn-OFF Delay Time	$t_{d(off)}$			26		ns
Fall Time	$t_f$			4		ns
Total Gate Charge	$Q_g$	$V_{DS} = 15V,$ $V_{GS} = 4.5V,$ $I_D = 5A$		9.5		nC
	$Q_{gs}$			1.5		nC
	$Q_{gd}$			3		nC
Diode Forward Voltage	$V_{FSD}$	$I_S = 5A, V_{GS} = 0$			1.2	V

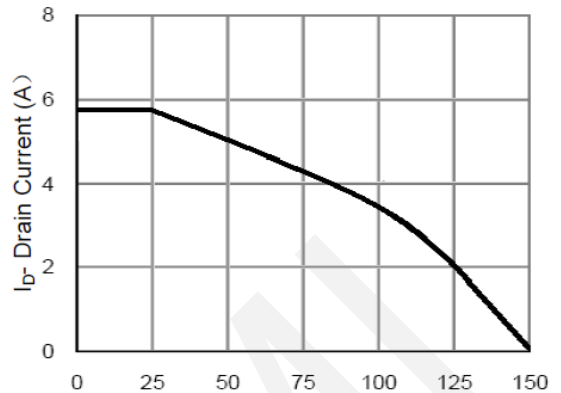
Note 3: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



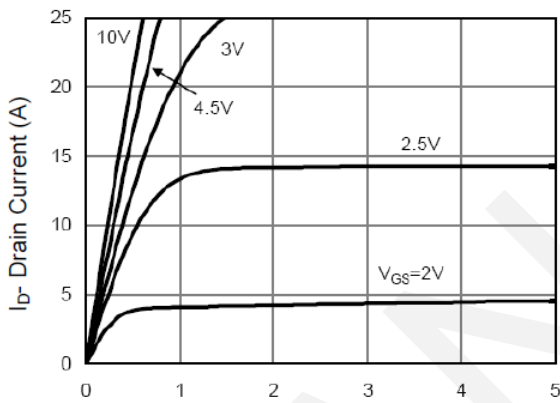
## 6. Typical Electrical and Thermal Characteristics



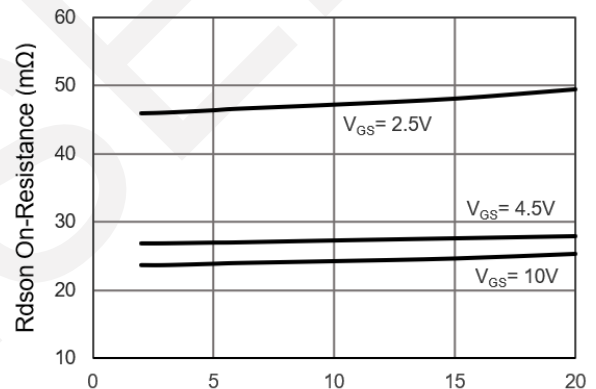
T<sub>J</sub>-Junction Temperature(°C)  
Power Dissipation



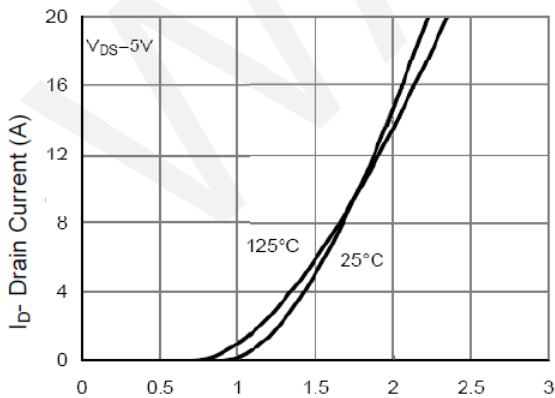
T<sub>J</sub>-Junction Temperature(°C)  
Drain Current



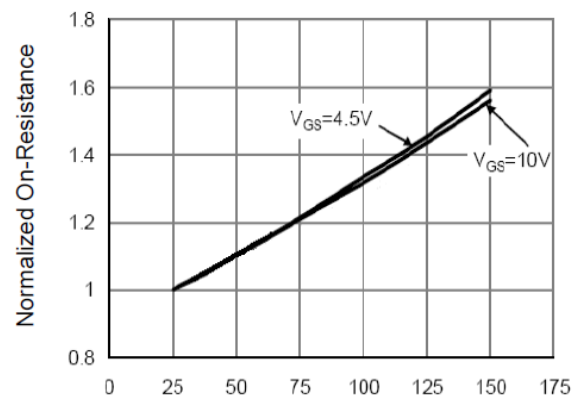
V<sub>DS</sub> Drain-Source Voltage (V)  
Output Characteristics



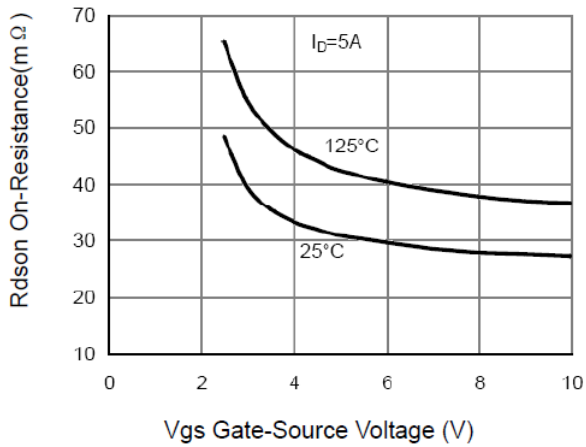
I<sub>D</sub>- Drain Current (A)  
Drain-Source On-Resistance



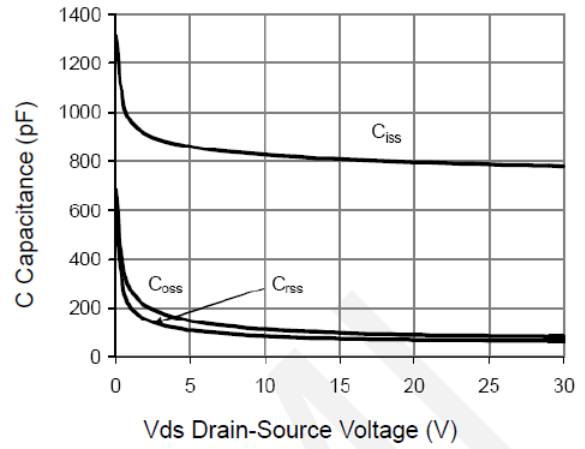
V<sub>GS</sub> Gate-Source Voltage (V)  
Transfer Characteristics



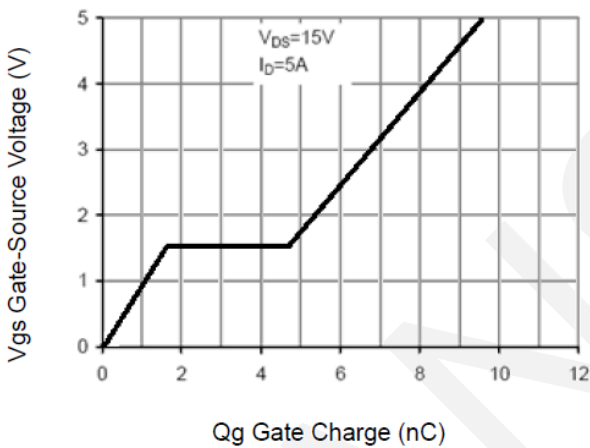
T<sub>J</sub>-Junction Temperature(°C)  
Drain-Source On-Resistance



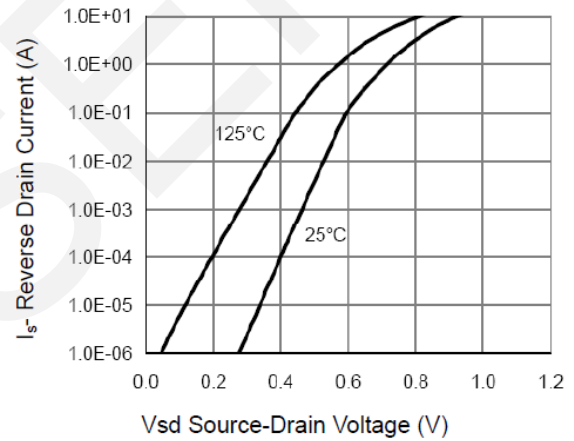
Rdson vs Vgs



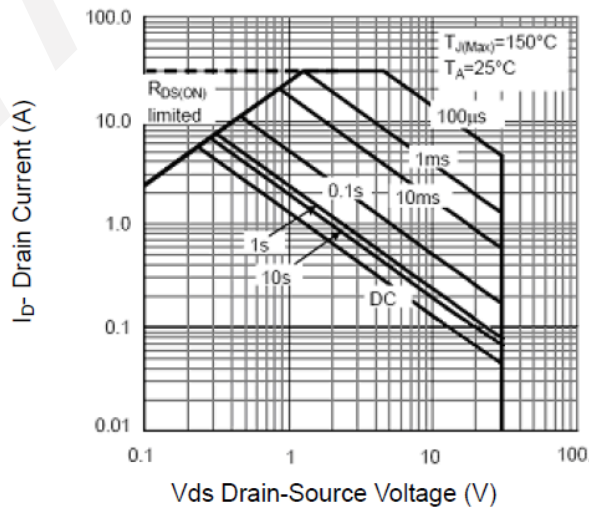
Capacitance vs Vds



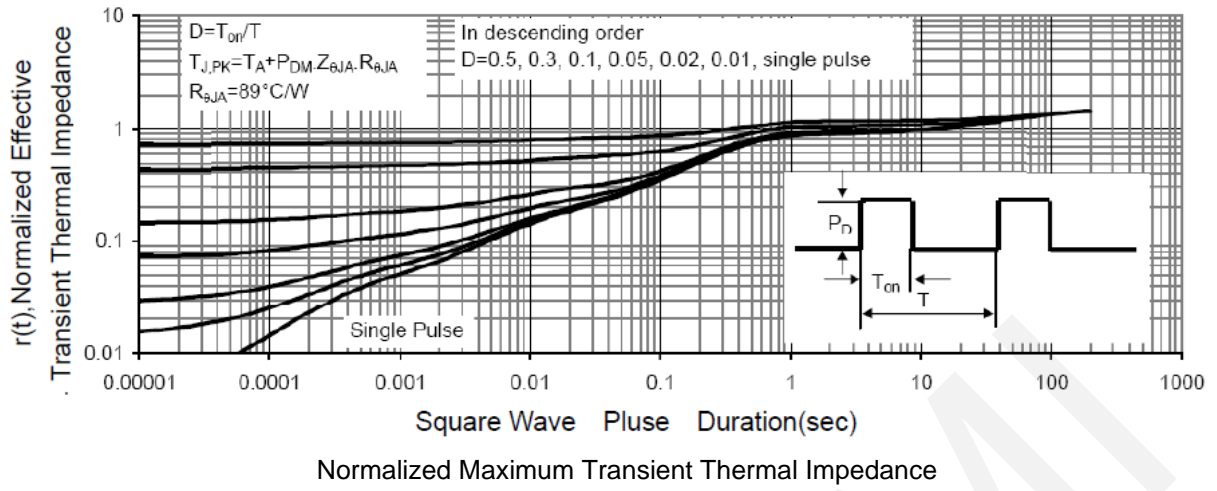
Gate Charge



Source- Drain Diode Forward

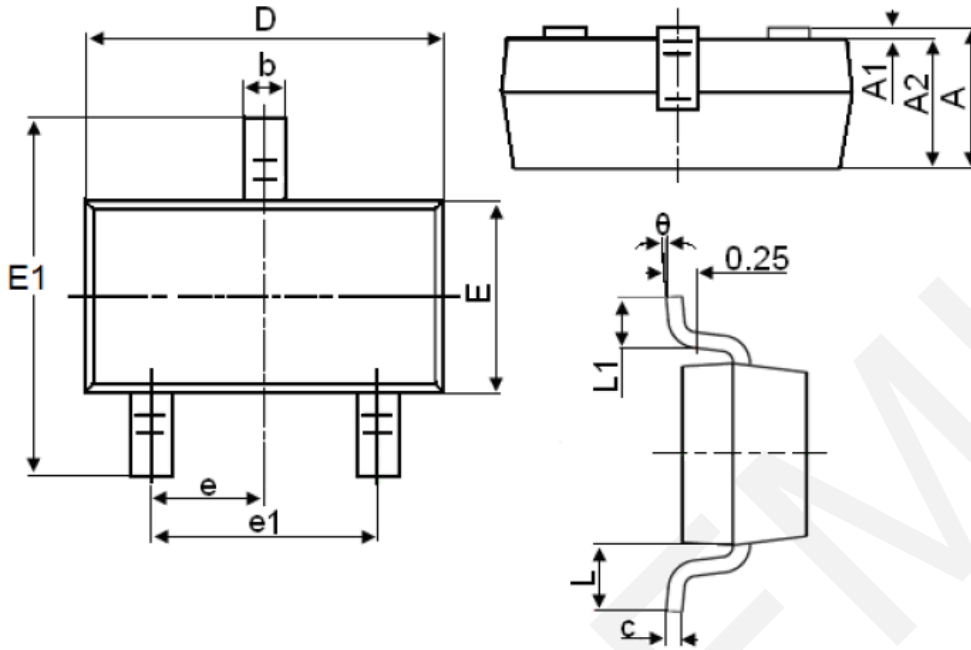


Safe Operation Area





**7.Package Dimensions**



Symbol	Dimensions in Millimeters		
	MIN.	TYP.	MAX.
A	0.900		1.150
A1	0.000		0.100
A2	0.900		1.050
b	0.300		0.500
c	0.080		0.150
D	2.800		3.000
E	1.200		1.400
E1	2.250		2.550
e		0.950	
e1	1.800		2.000
L		0.550	
L1	0.300		0.500
$\theta$	0°		8°

## 8. Important Notice

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