



## Features

Low Gate Charge  
High Power and current handing capability  
Lead free product is acquired

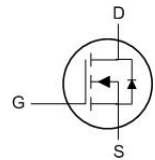
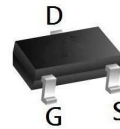
$V_{DSS}$  30 V  
 $I_D$  8 A  
 $R_{DS(ON)}$  12 m $\Omega$

## Application

PWM Applications  
Load Switch  
Power Management



## Equivalent Circuit



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage ( $V_{GS}=0V$ )	30	V
$V_{GS}$	Gate-Source Voltage ( $V_{DS}=0V$ )	$\pm 20$	V
$I_D$	Drain Current-Continuous( $T_A=25^\circ\text{C}$ )	8	A
	Drain Current-Continuous( $T_A=100^\circ\text{C}$ )	4.2	A
$I_{DM (pluse)}$	Drain Current-Continuous@ Current-Pulsed (Note 1)	26.4	A
$P_D$	Maximum Power Dissipation( $T_A=25^\circ\text{C}$ )	1.5	W
	Maximum Power Dissipation( $T_A=100^\circ\text{C}$ )	0.6	W
$E_{AS}$	Avalanche energy (Note 2)	30	mJ
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$

### Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient		83	$^\circ\text{C/W}$

## Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	30			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V T <sub>J</sub> =25°C			1	μA
		V <sub>DS</sub> =30V, V <sub>GS</sub> =0V T <sub>J</sub> =125°C			100	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		2.5	V
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =2A		7.7		S
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =3A T <sub>J</sub> =25°C		12	16	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A T <sub>J</sub> =25°C		17	22	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =2.5V, I <sub>D</sub> =2A T <sub>J</sub> =25°C		22	29	mΩ
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1.0MHz		916		pF
C <sub>oss</sub>	Output Capacitance			63.4		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			54.7		pF
R <sub>g</sub>	Gate resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1.0MHz		1.6		Ω
<b>Switching Parameters</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, R <sub>L</sub> =5Ω, R <sub>GEN</sub> =3Ω		4.2		nS
t <sub>r</sub>	Turn-on Rise Time			17		nS
t <sub>d(off)</sub>	Turn-Off Delay Time			93		nS
t <sub>f</sub>	Turn-Off Fall Time			37		nS
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =3A		10		nC
Q <sub>gs</sub>	Gate-Source Charge			1.6		nC
Q <sub>gd</sub>	Gate-Drain Charge			2.5		nC
<b>Source-Drain Diode Characteristics</b>						
I <sub>SD</sub>	Source-Drain Current (Body Diode)				8	A
V <sub>SD</sub>	Forward on Voltage (Note 3)	V <sub>GS</sub> =0V, I <sub>S</sub> =3A			1.2	V

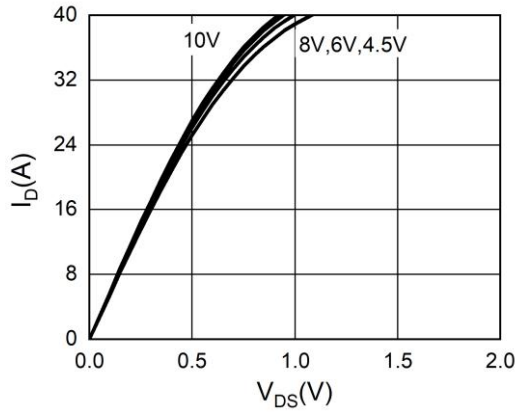
Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.E<sub>AS</sub> condition: T<sub>J</sub>=25°C, V<sub>DD</sub>=30V, V<sub>G</sub>=10V, R<sub>g</sub>=25Ω, L=0.5mH.

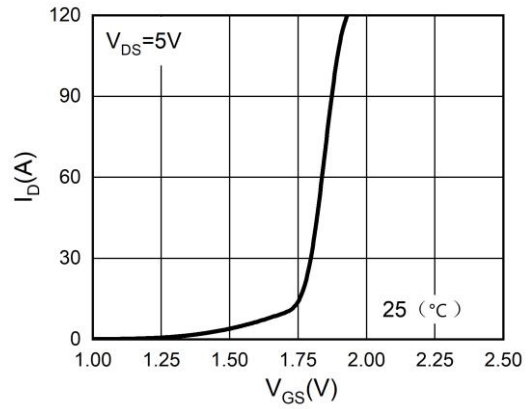
Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

RATING AND CHARACTERISTIC CURVES

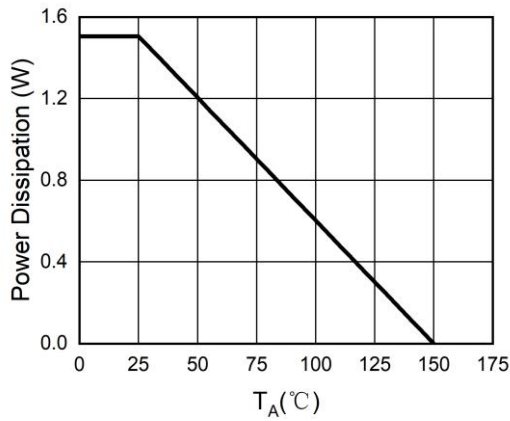
**Figure 1. Output Characteristics**



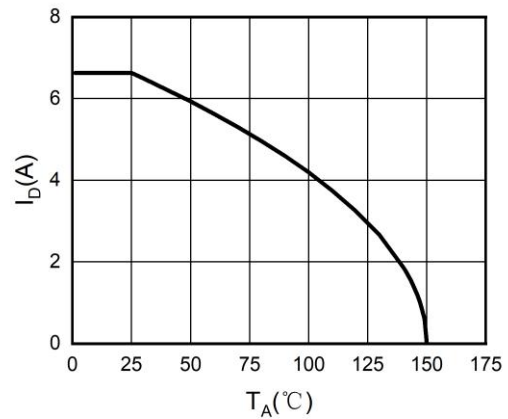
**Figure 2. Transfer Characteristics**



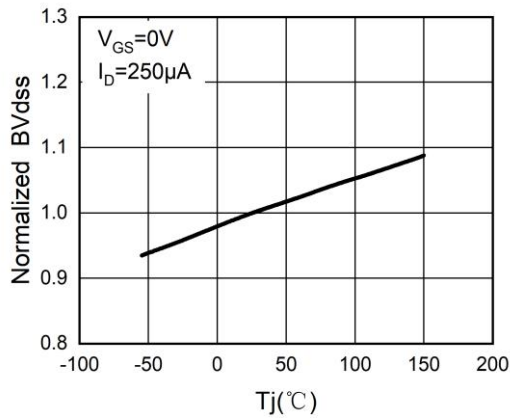
**Figure 3. Power Dissipation**



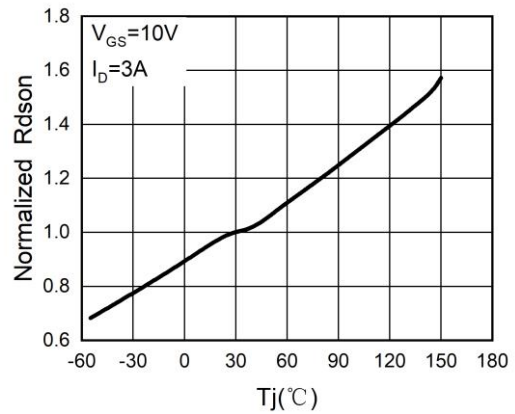
**Figure 4. Drain Current**



**Figure 5.  $BV_{DSS}$  vs Junction Temperature**

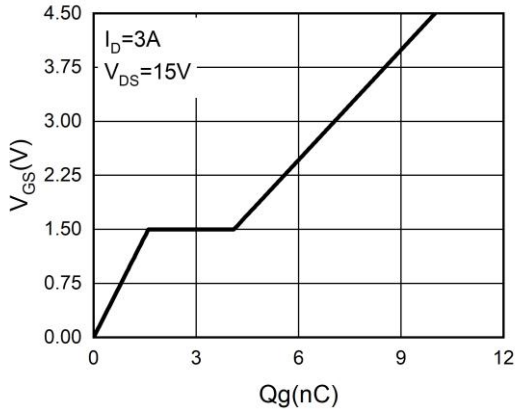


**Figure 6.  $R_{DS(ON)}$  vs Junction Temperature**

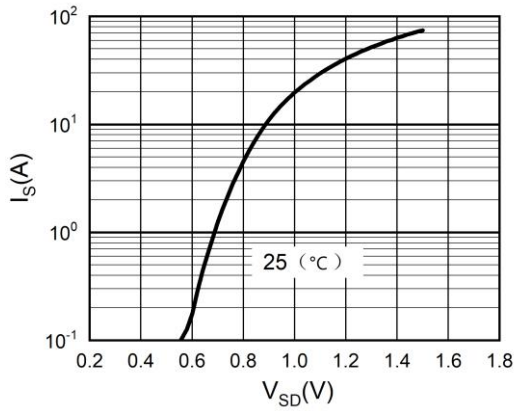


RATING AND CHARACTERISTIC CURVES

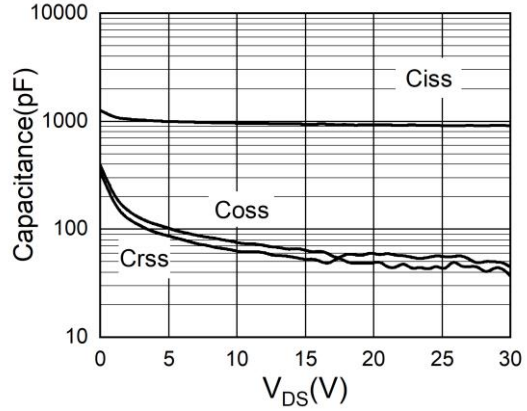
**Figure 7. Gate Charge Waveforms**



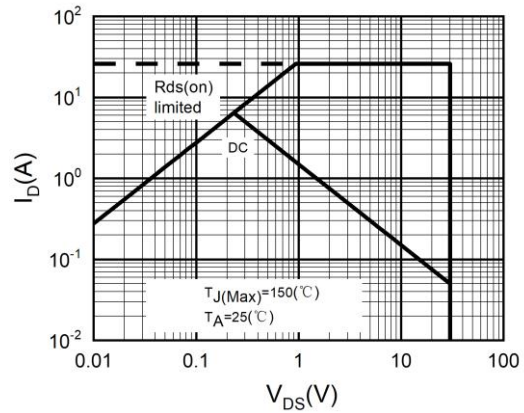
**Figure 9. Body-Diode Characteristics**



**Figure 8. Capacitance**

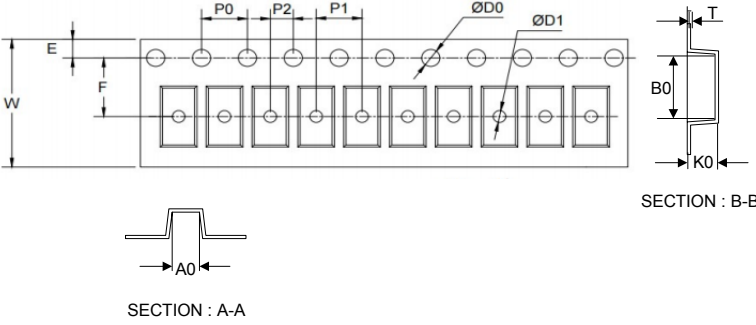
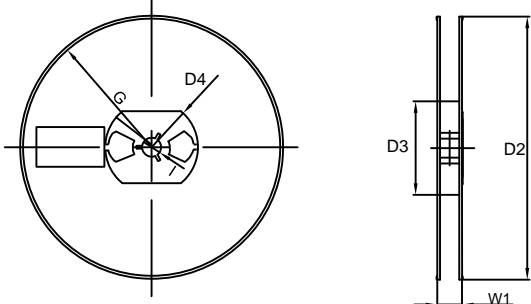


**Figure 10. Maximum Safe Operating Area**





Tape & reel specification

Tape	Symbol	Dimension (mm)	
	P0	4.00±0.20	
	P1	4.00±0.20	
	P2	2.00±0.20	
	D0	1.55±0.20	
	D1	1.05±0.20	
	E	1.55±0.20	
	F	3.60±0.20	
	W	8.00±0.20	
	A0	3.80±0.20	
	B0	3.50±0.20	
	K0	1.55±0.20	
	T	0.25±0.15	
	<p>7" Reel</p> 	D2	178.0±5.0
		D3	55Min.
		D4	R24.0±3.0
G		R82.0±3.0	
I		13.0±2.0	
W1		11.0±3.0	
Quantity: 3000PCS			