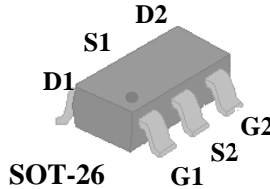


- ▼ Low Gate Charge
- ▼ Fast Switching Performance
- ▼ Surface Mount Package
- ▼ RoHS Compliant & Halogen-Free

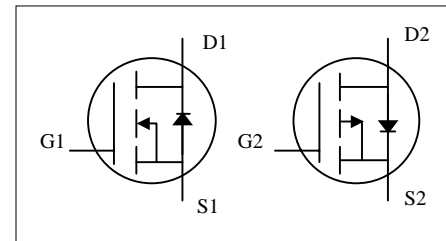


N-CH	$BV_{DSS}$	30V
	$R_{DS(ON)}$	72m $\Omega$
	$I_D$	3.3A
P-CH	$BV_{DSS}$	-30V
	$R_{DS(ON)}$	150m $\Omega$
	$I_D$	-2.3A

## Description

XSEMI MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The SOT-26 package is widely used for commercial surface mount applications.



## Absolute Maximum Ratings @ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating		Units
		N-channel	P-channel	
$V_{DS}$	Drain-Source Voltage	30	-30	V
$V_{GS}$	Gate-Source Voltage	+20	+20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current <sup>3</sup>	3.3	-2.3	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current <sup>3</sup>	2.7	-1.8	A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	12	-10	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	1.136		W
$T_{STG}$	Storage Temperature Range	-55 to 150		$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-55 to 150		$^\circ\text{C}$

## Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient <sup>3</sup>	110	$^\circ\text{C}/\text{W}$

**N-CH Electrical Characteristics @T<sub>j</sub>=25°C(unless otherwise specified)**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30	-	-	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =3A	-	-	72	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A	-	-	135	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1	-	3	V
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =3A	-	4.6	-	S
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	1	uA
I <sub>GSS</sub>	Gate-Source Leakage	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
Q <sub>g</sub>	Total Gate Charge <sup>2</sup>	I <sub>D</sub> =3A	-	2.8	4.5	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =15V	-	1.2	-	nC
Q <sub>gd</sub>	Gate-Drain ("Miller") Charge	V <sub>GS</sub> =4.5V	-	1.4	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time <sup>2</sup>	V <sub>DS</sub> =15V	-	5.5	-	ns
t <sub>r</sub>	Rise Time	I <sub>D</sub> =1A	-	6.5	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time	R <sub>G</sub> =3.3Ω	-	10	-	ns
t <sub>f</sub>	Fall Time	V <sub>GS</sub> =10V	-	2	-	ns
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V	-	200	320	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =15V	-	60	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f=1.0MHz	-	40	-	pF
R <sub>g</sub>	Gate Resistance	f=1.0MHz	-	1	-	Ω

**Source-Drain Diode**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V <sub>SD</sub>	Forward On Voltage <sup>2</sup>	I <sub>S</sub> =0.9A, V <sub>GS</sub> =0V	-	-	1.2	V
t <sub>rr</sub>	Reverse Recovery Time <sup>2</sup>	I <sub>S</sub> =3A, V <sub>GS</sub> =0V	-	15	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge	dI/dt=100A/μs	-	8	-	nC

**P-CH Electrical Characteristics @ $T_j=25^{\circ}\text{C}$ (unless otherwise specified)**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS}=-10V, I_D=-2A$	-	-	150	$m\Omega$
		$V_{GS}=-4.5V, I_D=-1A$	-	-	280	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-	-3	V
$g_{fs}$	Forward Transconductance	$V_{DS}=-5V, I_D=-2A$	-	2.9	-	S
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	$\mu A$
$I_{GSS}$	Gate-Source Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
$Q_g$	Total Gate Charge <sup>2</sup>	$I_D=-2A$	-	2.5	4	nC
$Q_{gs}$	Gate-Source Charge	$V_{DS}=-15V$	-	0.8	-	nC
$Q_{gd}$	Gate-Drain ("Miller") Charge	$V_{GS}=-4.5V$	-	1.2	-	nC
$t_{d(on)}$	Turn-on Delay Time <sup>2</sup>	$V_{DS}=-15V$	-	5.5	-	ns
$t_r$	Rise Time	$I_D=-1A$	-	8	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=3.3\Omega$	-	17	-	ns
$t_f$	Fall Time	$V_{GS}=-10V$	-	3	-	ns
$C_{iss}$	Input Capacitance	$V_{GS}=0V$	-	160	260	pF
$C_{oss}$	Output Capacitance	$V_{DS}=-15V$	-	60	-	pF
$C_{rss}$	Reverse Transfer Capacitance	$f=1.0\text{MHz}$	-	40	-	pF
$R_g$	Gate Resistance	$f=1.0\text{MHz}$	-	8	-	$\Omega$

**Source-Drain Diode**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_{SD}$	Forward On Voltage <sup>2</sup>	$I_S=0.9A, V_{GS}=0V$	-	-	1.2	V
$t_{rr}$	Reverse Recovery Time <sup>2</sup>	$I_S=2A, V_{GS}=0V$	-	16	-	ns
$Q_{rr}$	Reverse Recovery Charge	$di/dt=100A/\mu s$	-	9	-	nC

**Notes:**

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board,  $t_{\leq 5\text{sec}}$  ; 180°C/W when mounted on min. copper pad.

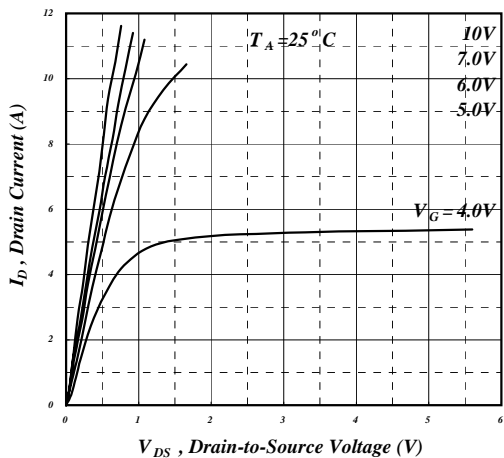
THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

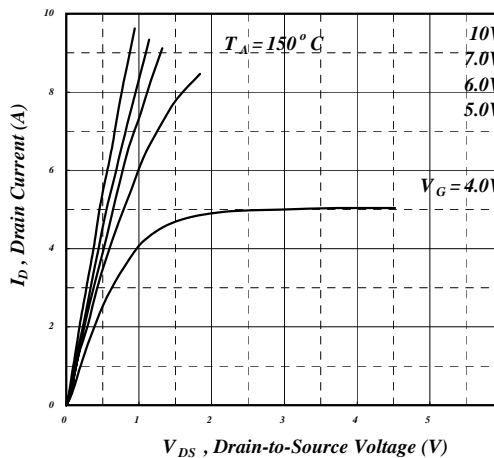
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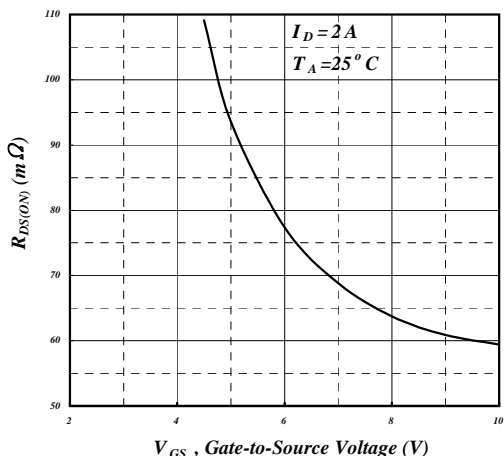
**N-Channel**



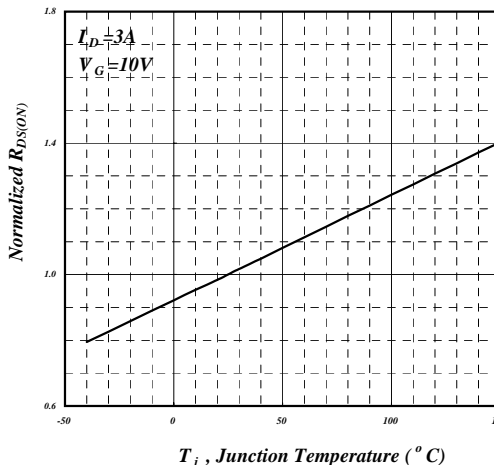
**Fig 1. Typical Output Characteristics**



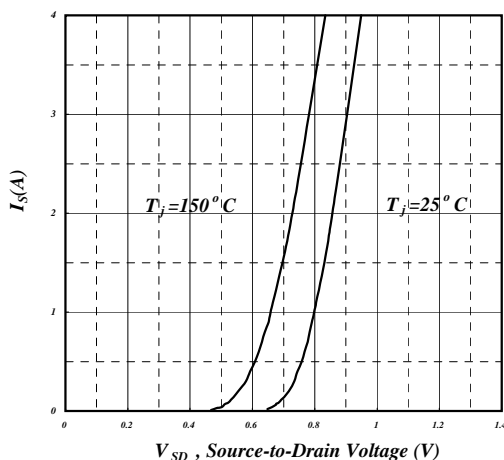
**Fig 2. Typical Output Characteristics**



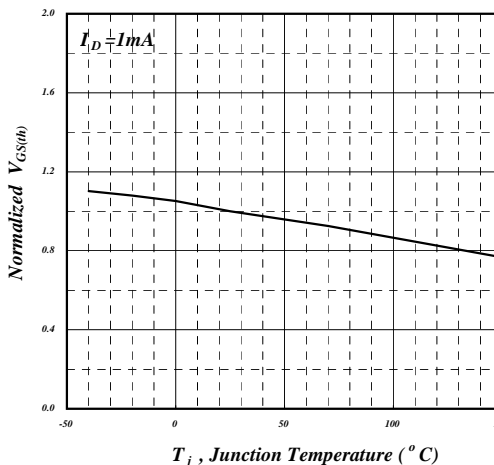
**Fig 3. On-Resistance v.s. Gate Voltage**



**Fig 4. Normalized On-Resistance v.s. Junction Temperature**

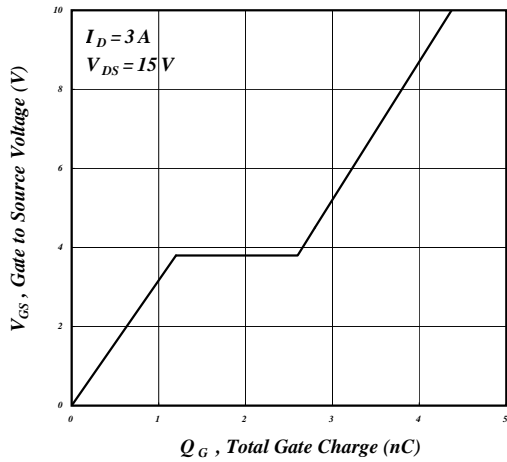


**Fig 5. Forward Characteristic of Reverse Diode**

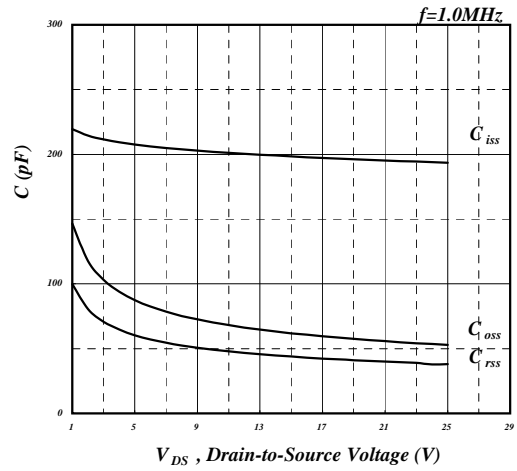


**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

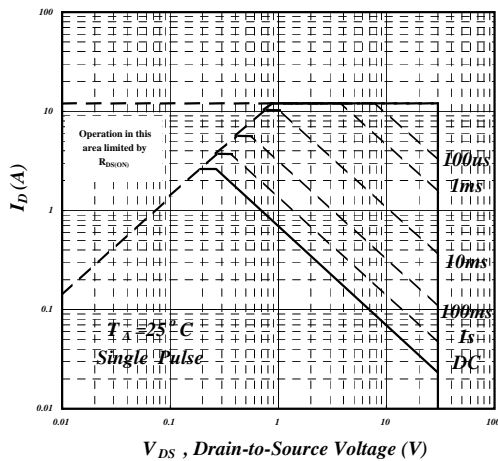
**N-Channel**



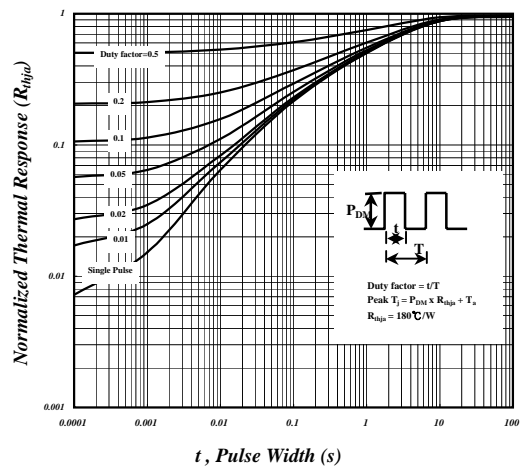
**Fig 7. Gate Charge Characteristics**



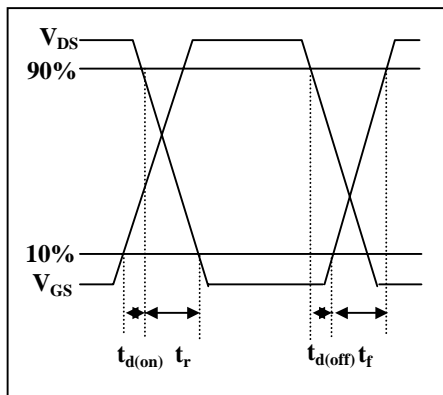
**Fig 8. Typical Capacitance Characteristics**



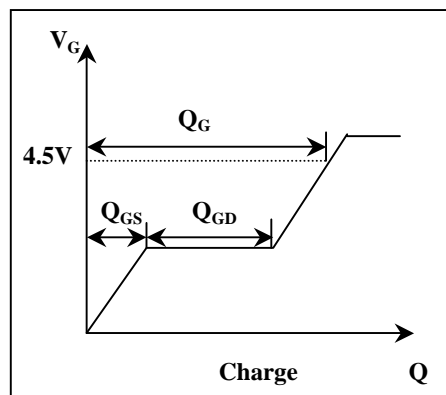
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**

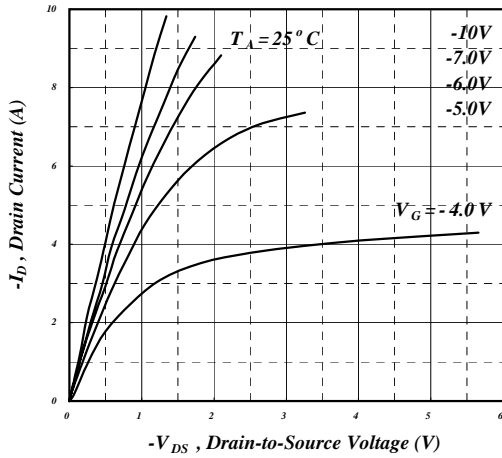


**Fig 11. Switching Time Waveform**

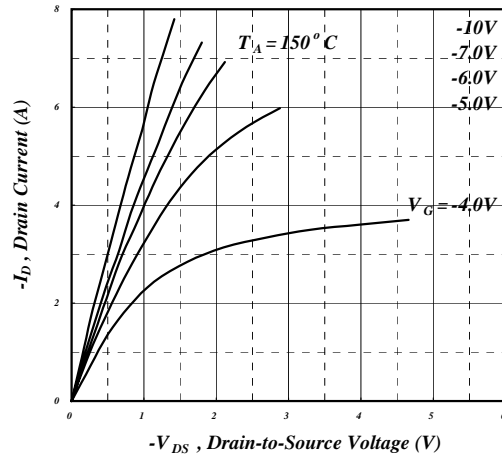


**Fig 12. Gate Charge Waveform**

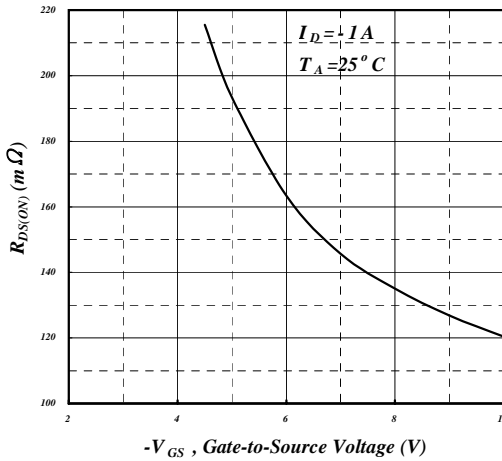
**P-Channel**



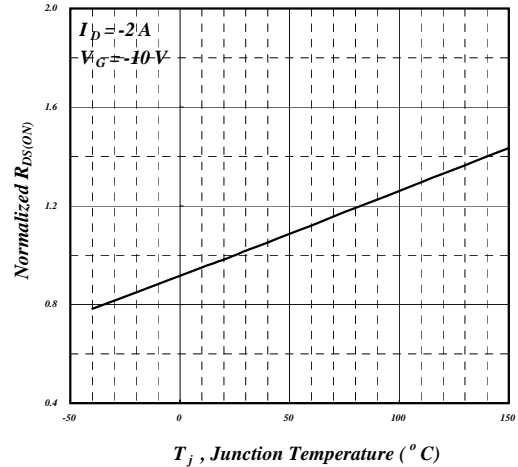
**Fig 1. Typical Output Characteristics**



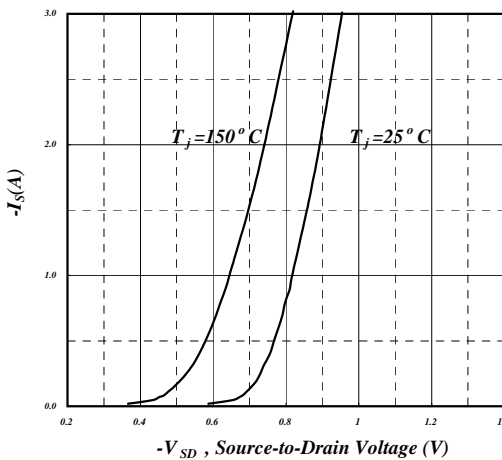
**Fig 2. Typical Output Characteristics**



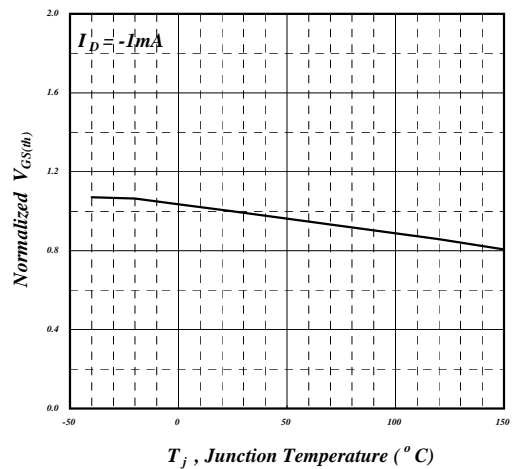
**Fig 3. On-Resistance v.s. Gate Voltage**



**Fig 4. Normalized On-Resistance v.s. Junction Temperature**

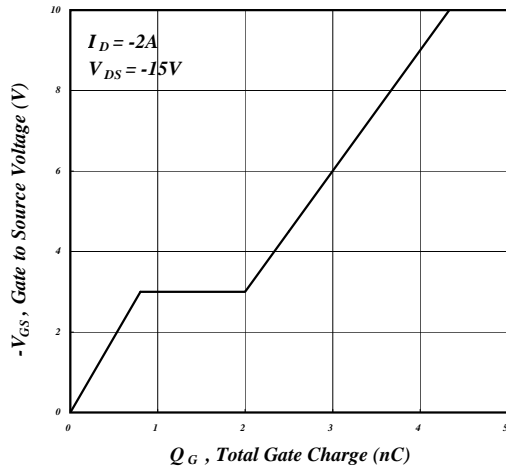


**Fig 5. Forward Characteristic of Reverse Diode**

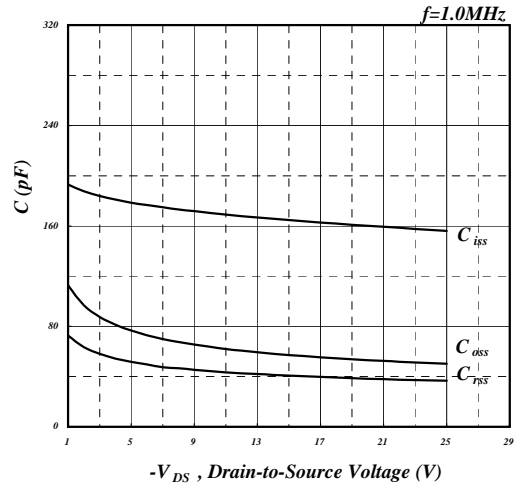


**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

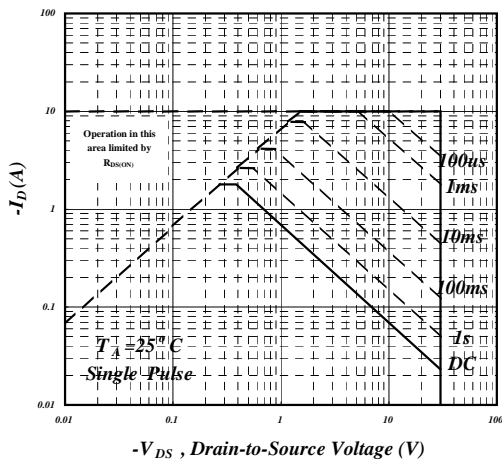
**P-Channel**



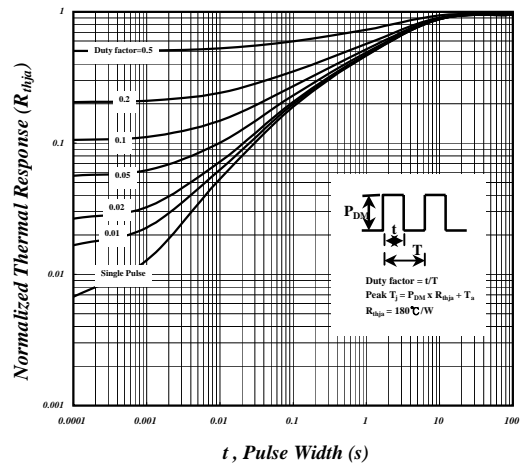
**Fig 7. Gate Charge Characteristics**



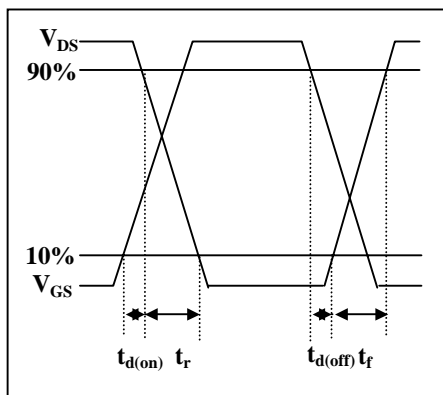
**Fig 8. Typical Capacitance Characteristics**



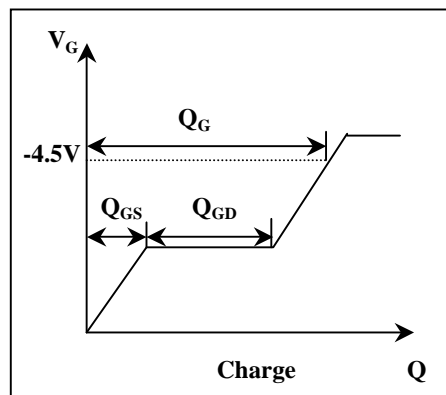
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**



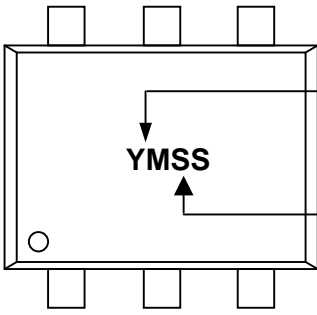
**Fig 11. Switching Time Waveform**



**Fig 12. Gate Charge Waveform**

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**MARKING INFORMATION**



Part Number : YM

Date Code : SS

SS:2004,2008,2012,2016,2020,2024...

SS:2003,2007,2011,2015,2019,2023...

SS:2002,2006,2010,2014,2018,2022...

SS:2001,2005,2009,2013,2017,2021...