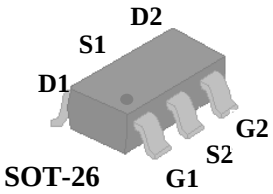
XP2530AGY

Halogen-Free Product

N AND P-CHANNEL ENHANCEMENT MODE POWER MOSFET

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

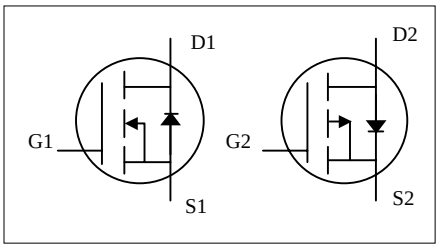


SOT-26

N-CH	BV_{DSS}	30V
	$R_{DS(ON)}$	72mΩ
	I_D	3.3A
P-CH	BV_{DSS}	-30V
	$R_{DS(ON)}$	150mΩ
	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°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℃	Continuous Drain Current[3]	3.3	-2.3	A
I_D@T_A=70℃	Continuous Drain Current[3]	2.7	-1.8	A
I_{DM}	Pulsed Drain Current[1]	12	-10	A
P_D@T_A=25℃	Total Power Dissipation	1.136		W
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	110	℃/W

N-CH Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=3A	-	-	72	mΩ
		V_{GS}=4.5V, I_D=2A	-	-	135	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1	-	3	V
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D=3A	-	4.6	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=24V, V_{GS}=0V	-	-	1	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge[2]	I_D=3A	-	2.8	4.5	nC
Q_{gs}	Gate-Source Charge	V_{DS}=15V	-	1.2	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=4.5V	-	1.4	-	nC
$t_{d(on)}$	Turn-on Delay Time[2]	V_{DS}=15V	-	5.5	-	ns
t_r	Rise Time	I_D=1A	-	6.5	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω	-	10	-	ns
t_f	Fall Time	V_{GS}=10V	-	2	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	200	320	pF
C_{oss}	Output Capacitance	V_{DS}=15V	-	60	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	40	-	pF
R_g	Gate Resistance	f=1.0MHz	-	1	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=0.9A, V_{GS}=0V	-	-	1.2	V
t_{rr}	Reverse Recovery Time[2]	I_S=3A, V_{GS}=0V	-	15	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	8	-	nC

P-CH Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-2A	-	-	150	mΩ
		V_{GS}=-4.5V, I_D=-1A	-	-	280	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-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	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge[2]	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[2]	V_{DS}=-15V	-	5.5	-	ns
t_r	Rise Time	I_D=-1A	-	8	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω	-	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=1.0MHz	-	40	-	pF
R_g	Gate Resistance	f=1.0MHz	-	8	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=0.9A, V_{GS}=0V	-	-	1.2	V
t_{rr}	Reverse Recovery Time[2]	I_S=2A, V_{GS}=0V	-	16	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	9	-	nC

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse test

3.Surface mounted on 1 in^2 copper pad of FR4 board, t≤5sec ; 180℃/W when mounted on min. copper pad.

N-Channel

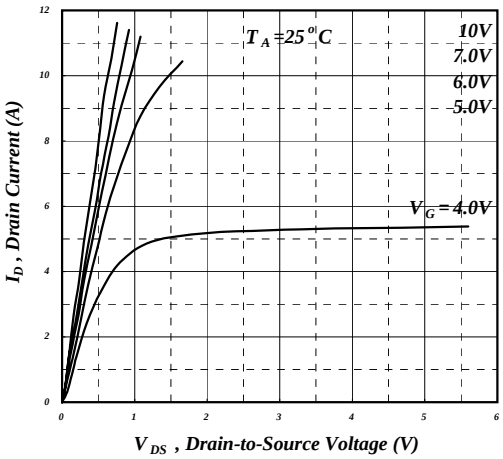


Fig 1. Typical Output Characteristics

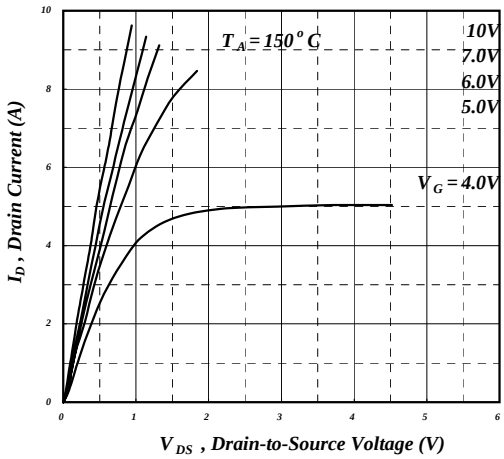


Fig 2. Typical Output Characteristics

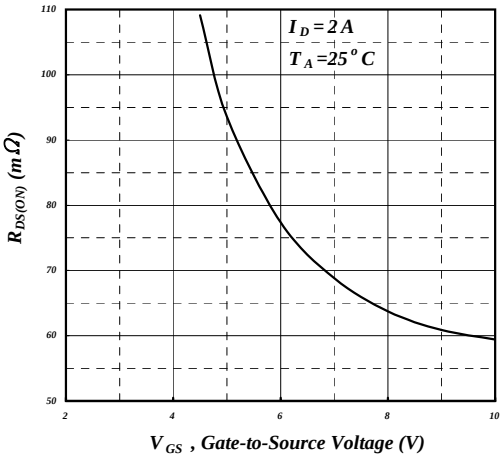


Fig 3. On-Resistance v.s. Gate Voltage

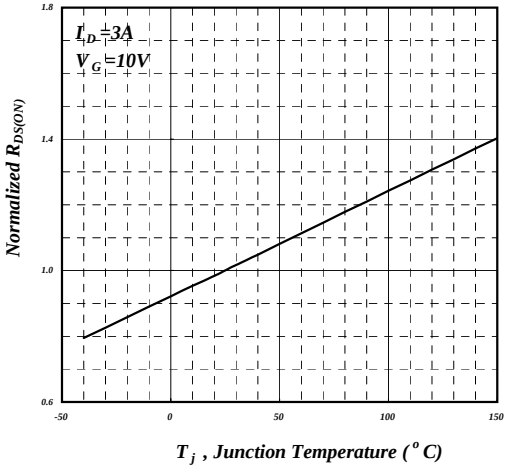


Fig 4. Normalized On-Resistance v.s. Junction Temperature

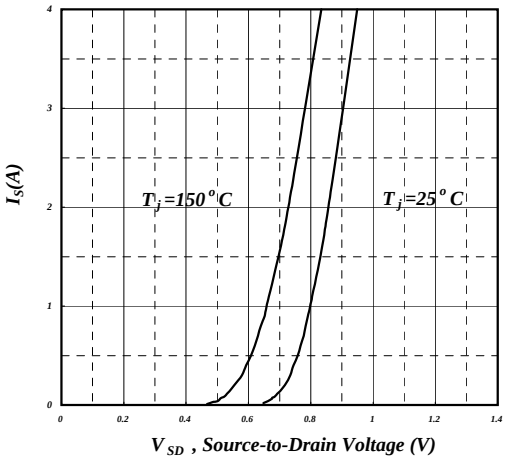


Fig 5. Forward Characteristic of Reverse Diode

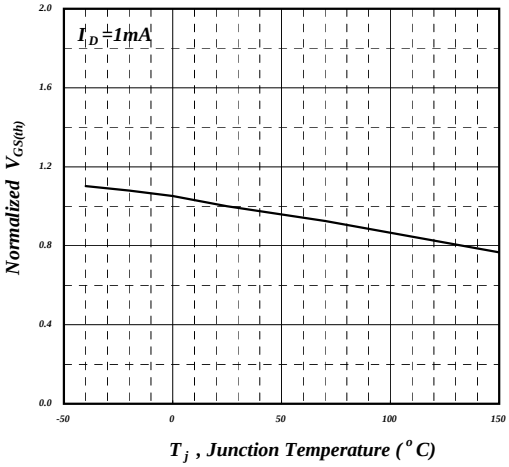


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

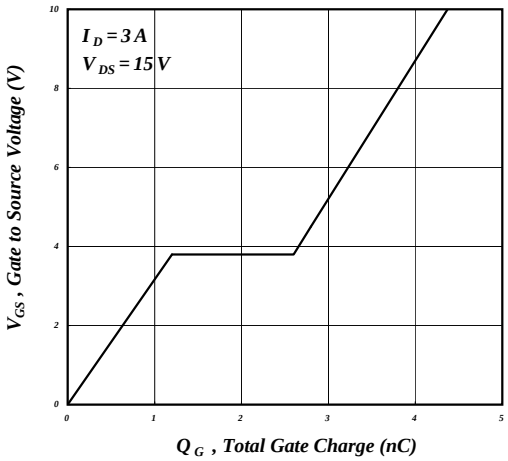


Fig 7. Gate Charge Characteristics

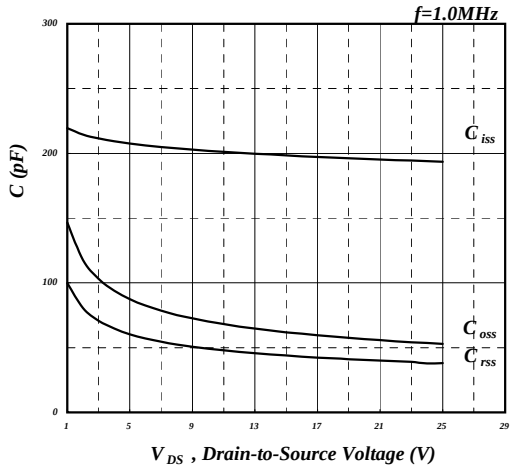


Fig 8. Typical Capacitance Characteristics

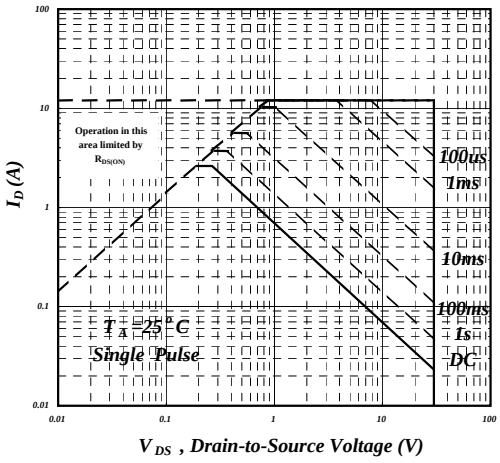


Fig 9. Maximum Safe Operating Area

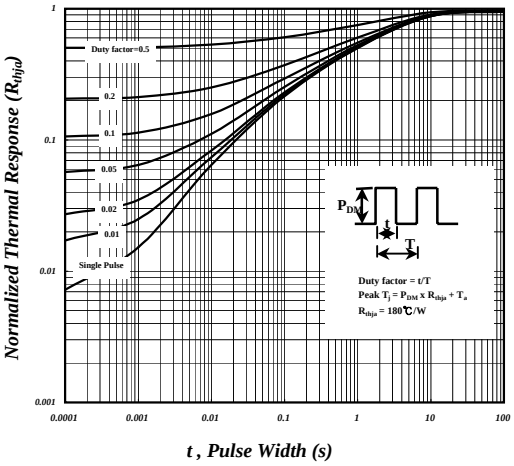


Fig 10. Effective Transient Thermal Impedance

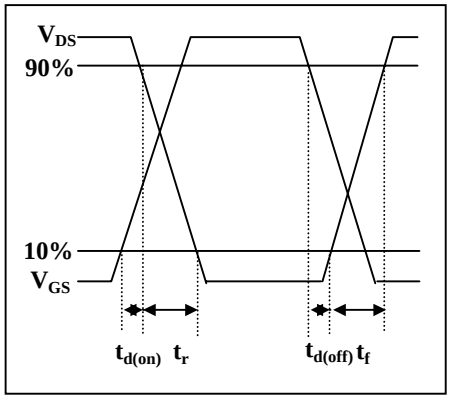


Fig 11. Switching Time Waveform

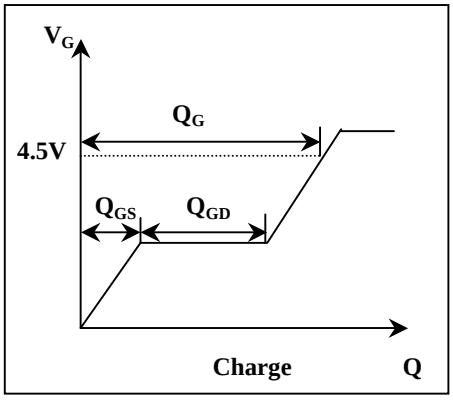


Fig 12. Gate Charge Waveform

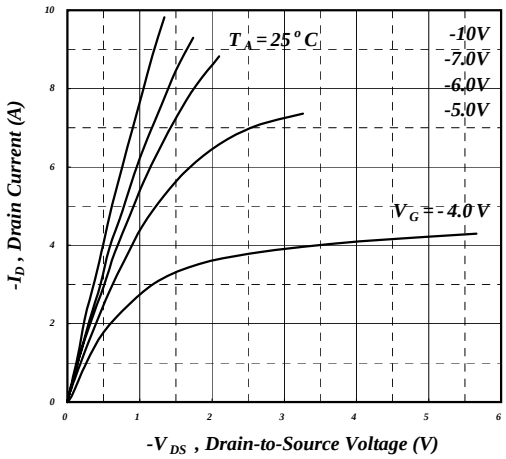


Fig 1. Typical Output Characteristics

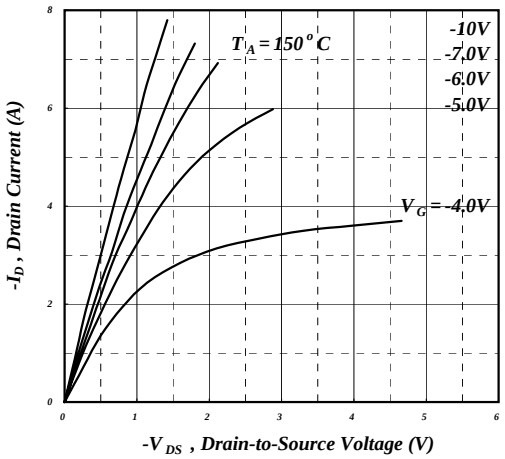


Fig 2. Typical Output Characteristics

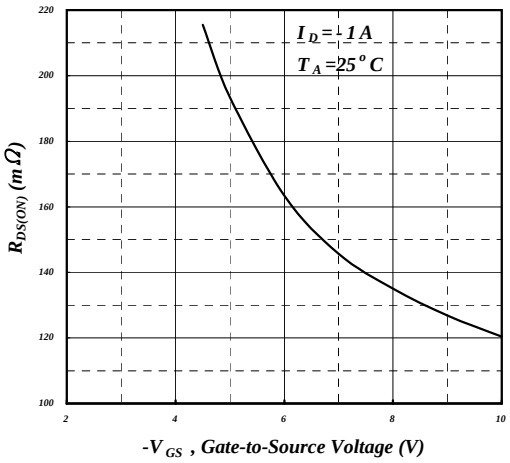


Fig 3. On-Resistance v.s. Gate Voltage

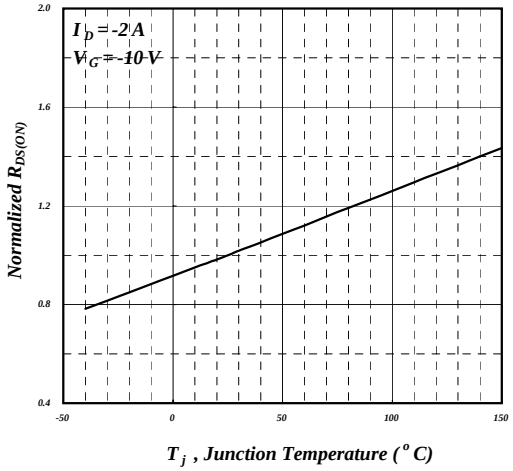


Fig 4. Normalized On-Resistance v.s. Junction Temperature

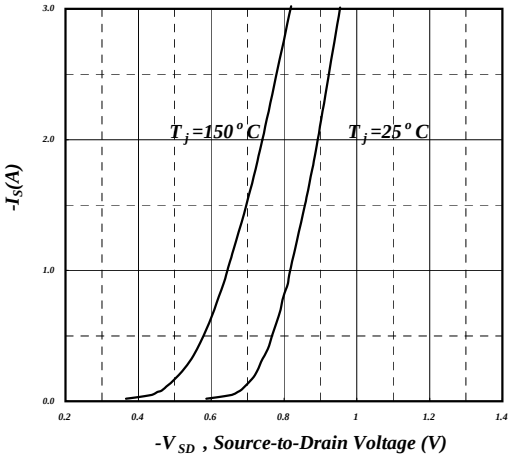


Fig 5. Forward Characteristic of Reverse Diode

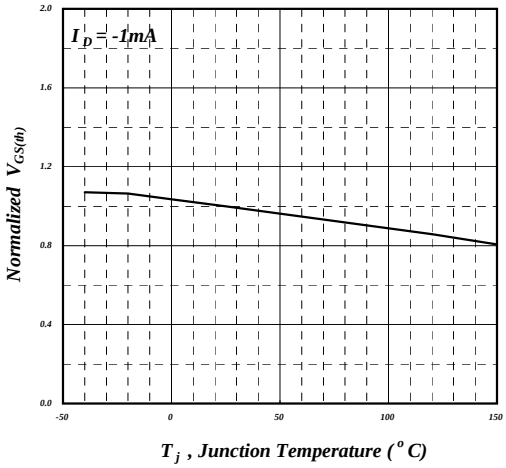


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

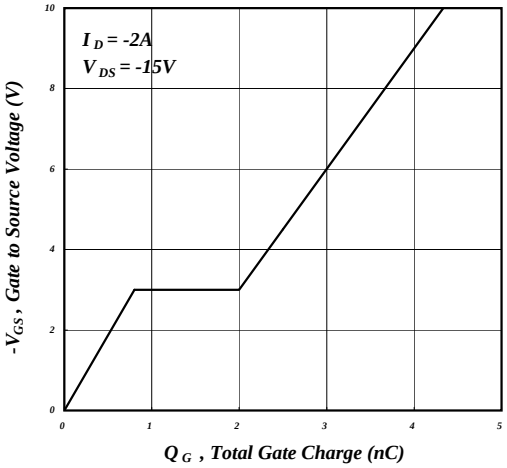


Fig 7. Gate Charge Characteristics

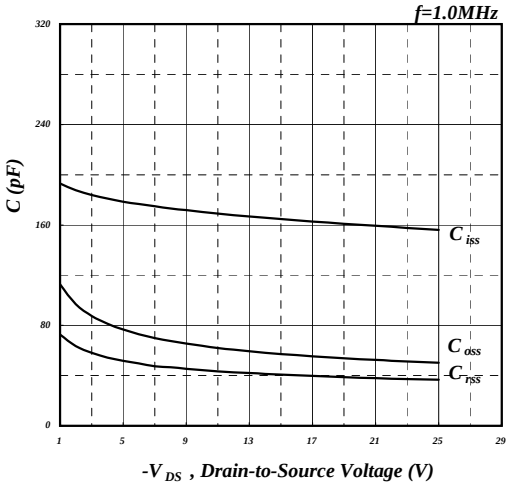
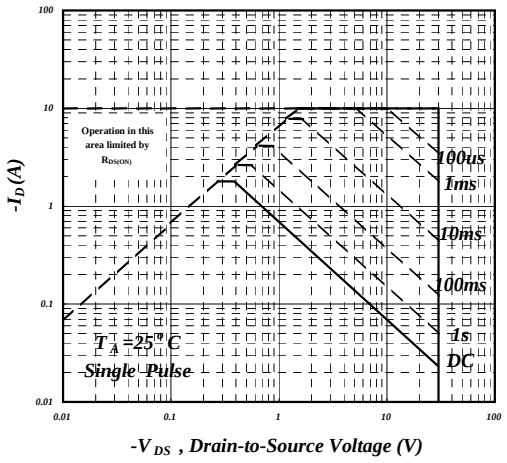


Fig 8. Typical Capacitance Characteristics



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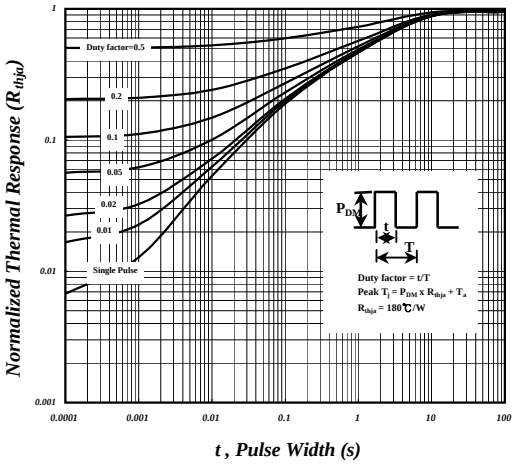


Fig 10. Effective Transient Thermal Impedance

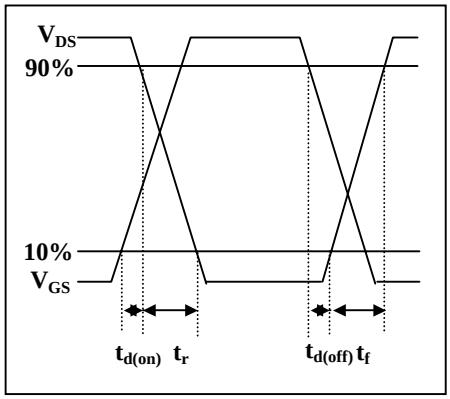


Fig 11. Switching Time Waveform

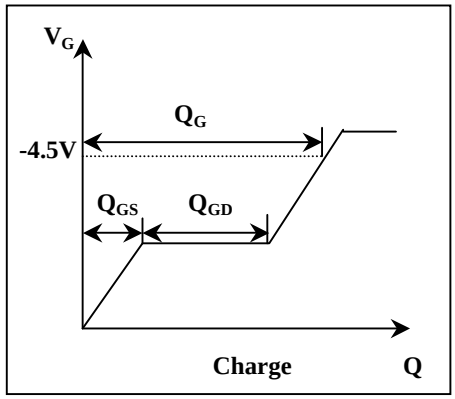
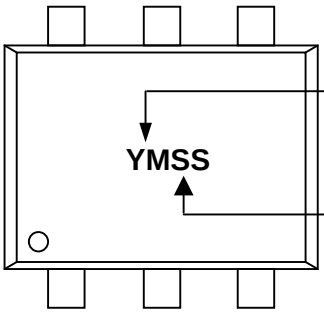


Fig 12. Gate Charge Waveform

MARKING INFORMATION



Part Number : YM

Date Code : SS

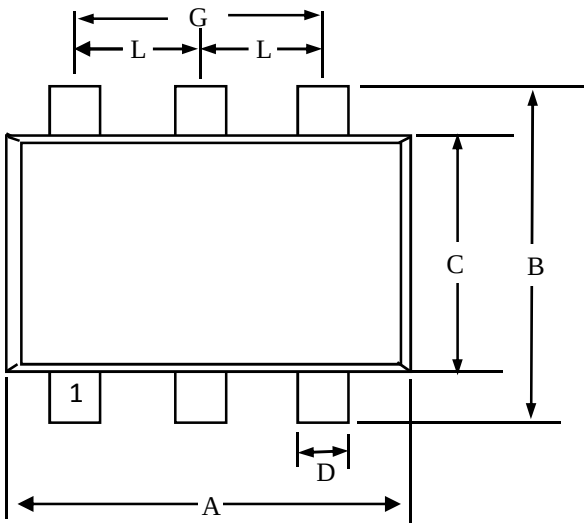
SS:2004,2008,2012,2016,2020,2024...

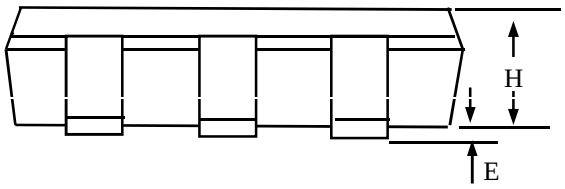
SS:2003,2007,2011,2015,2019,2023...

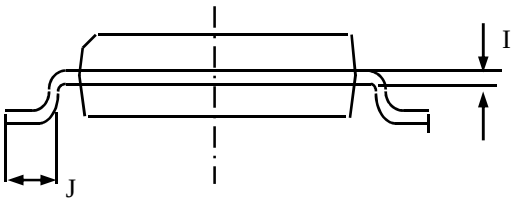
SS:2002,2006,2010,2014,2018,2022...

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

Package Outline : SOT-26







	Millimeters		
SYMBOLS	MIN	NOM	MAX
A	2.70	2.90	3.10
B	2.60	2.80	3.00
C	1.40	1.60	1.80
D	0.30	0.40	0.50
E	0.00	0.05	0.10
H	1.00	1.15	1.30
G	—	1.95 (ref.)	—
I	0.10	0.15	0.20
J	0.30	0.45	0.60
L	—	0.95 (ref.)	—

1.All Dimension Are In Millimeters.

2.Dimension Does Not Include Mold Protrusions.

Draw No. M1-Y6-G-v02

SOT-26 FOOTPRINT：