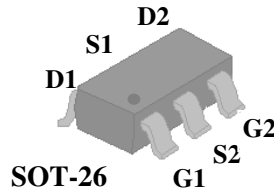




- ▼ Low Gate Charge
- ▼ Fast Switching Performance
- ▼ Surface Mount Package

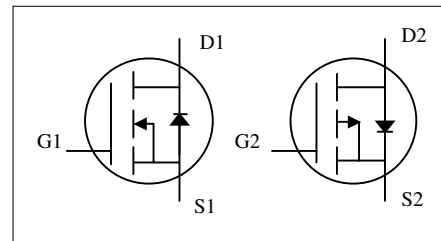


N-CH	$BV_{DSS}$	30V
	$R_{DS(ON)}$	130m $\Omega$
	$I_D$	2.4A
P-CH	$BV_{DSS}$	-30V
	$R_{DS(ON)}$	250m $\Omega$
	$I_D$	-1.8A

## Description

Advanced Power 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

Symbol	Parameter	Rating		Units
		N-channel	P-channel	
$V_{DS}$	Drain-Source Voltage	30	-30	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	$\pm 20$	V
$I_D@T_A=25^\circ C$	Continuous Drain Current <sup>3</sup>	2.4	-1.8	A
$I_D@T_A=70^\circ C$	Continuous Drain Current <sup>3</sup>	1.9	-1.4	A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	10	-10	A
$P_D@T_A=25^\circ C$	Total Power Dissipation	1.14		W
	Linear Derating Factor	0.01		W/ $^\circ C$
$T_{STG}$	Storage Temperature Range	-55 to 150		$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 150		$^\circ C$

## Thermal Data

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



**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> =1A	-	-	130	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A	-	-	250	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1.2	-	3	V
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =1A	-	1.6	-	S
I <sub>DSS</sub>	Drain-Source Leakage Current (T <sub>j</sub> =25°C)	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	1	uA
	Drain-Source Leakage Current (T <sub>j</sub> =70°C)	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	25	uA
I <sub>GSS</sub>	Gate-Source Leakage	V <sub>GS</sub> =±20V	-	-	±100	nA
Q <sub>g</sub>	Total Gate Charge <sup>2</sup>	I <sub>D</sub> =1.8A	-	2.7	4.3	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =10V	-	0.9	-	nC
Q <sub>gd</sub>	Gate-Drain ("Miller") Charge	V <sub>GS</sub> =4.5V	-	1.2	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time <sup>2</sup>	V <sub>DS</sub> =15V	-	4.3	-	ns
t <sub>r</sub>	Rise Time	I <sub>D</sub> =1A	-	10	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time	R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =10V	-	12	-	ns
t <sub>f</sub>	Fall Time	R <sub>D</sub> =15Ω	-	2.5	-	ns
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V	-	180	290	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =10V	-	70	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f=1.0MHz	-	50	-	pF
R <sub>g</sub>	Gate Resistance	f=1.0MHz	-	1.7	2.6	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	-	-	1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>S</sub> =1.8A, V <sub>GS</sub> =0V	-	16	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge	dI/dt=100A/μs	-	10	-	nC

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
B <sub>V</sub> DSS	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	V <sub>GS</sub> =-10V, I <sub>D</sub> =-0.6A	-	-	250	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-0.3A	-	-	400	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-1.2	-	-3	V
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1A	-	1.7	-	S
I <sub>DSS</sub>	Drain-Source Leakage Current (T <sub>j</sub> =25°C)	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V	-	-	-1	uA
	Drain-Source Leakage Current (T <sub>j</sub> =70°C)	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V	-	-	-25	uA
I <sub>GSS</sub>	Gate-Source Leakage	V <sub>GS</sub> =±20V	-	-	±100	nA
Q <sub>g</sub>	Total Gate Charge <sup>2</sup>	I <sub>D</sub> =-1.2A	-	2.5	4	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-10V	-	1	-	nC
Q <sub>gd</sub>	Gate-Drain ("Miller") Charge	V <sub>GS</sub> =-4.5V	-	1	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time <sup>2</sup>	V <sub>DS</sub> =-15V	-	6	-	ns
t <sub>r</sub>	Rise Time	I <sub>D</sub> =-0.6A	-	9	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time	R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =-10V	-	18	-	ns
t <sub>f</sub>	Fall Time	R <sub>D</sub> =25Ω	-	4	-	ns
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V	-	175	280	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =-10V	-	63	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f=1.0MHz	-	45	-	pF
R <sub>g</sub>	Gate Resistance	f=1.0MHz	-	10	15	Ω

**Source-Drain Diode**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>SD</sub>	Forward On Voltage <sup>2</sup>	I <sub>S</sub> =-0.9A, V <sub>GS</sub> =0V	-	-	-1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>S</sub> =-1.2A, V <sub>GS</sub> =0V,	-	14	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge	dI/dt=100A/μs	-	6	-	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<sub>≤</sub>5sec ; 180°C/W when mounted on min. copper pad.

THIS PRODUCT IS AN ELECTROSTATIC SENSITIVE, PLEASE HANDLE WITH CAUTION.

THIS PRODUCT HAS BEEN QUALIFIED FOR CONSUMER MARKET. APPLICATIONS OR USES AS CRITERIAL COMPONENT IN LIFE SUPPORT DEVICE OR SYSTEM ARE NOT AUTHORIZED.



N-Channel

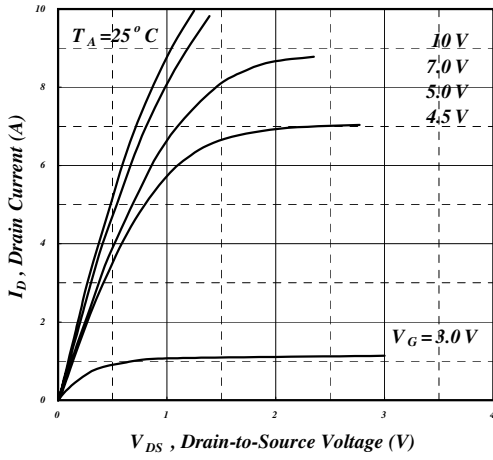


Fig 1. Typical Output Characteristics

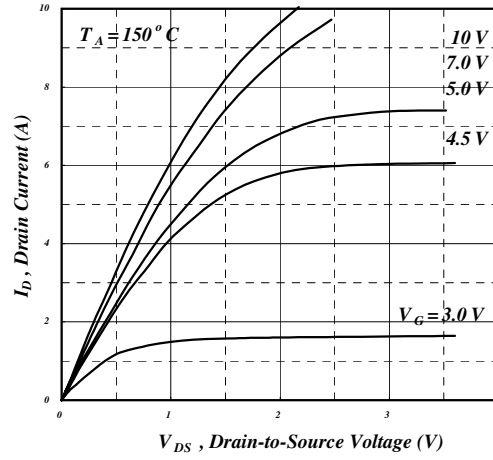


Fig 2. Typical Output Characteristics

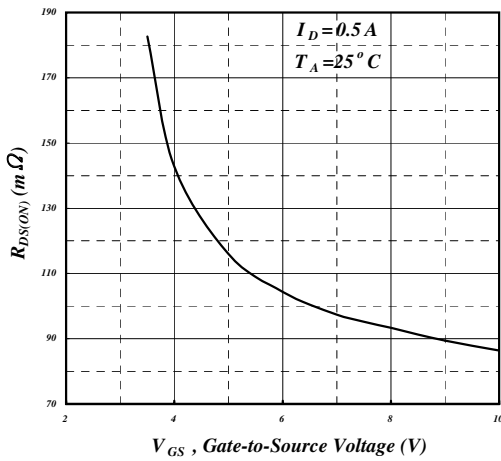


Fig 3. On-Resistance v.s. Gate Voltage

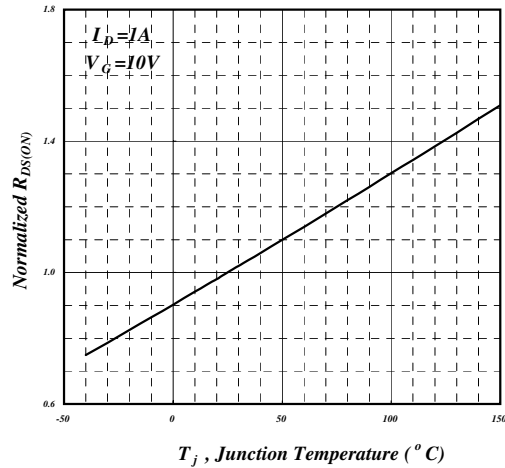


Fig 4. Normalized On-Resistance v.s. Junction Temperature

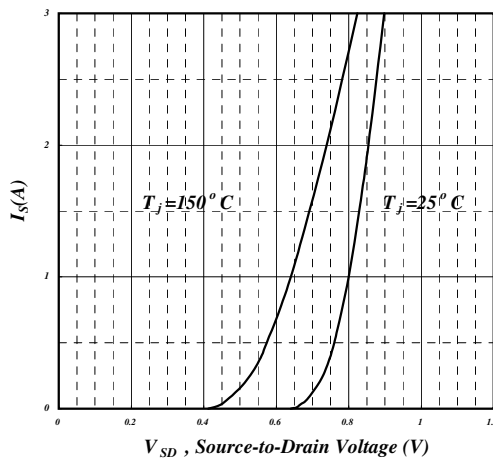


Fig 5. Forward Characteristic of Reverse Diode

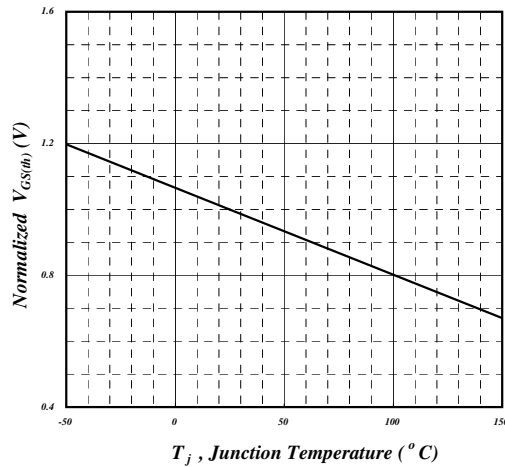


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



N-Channel

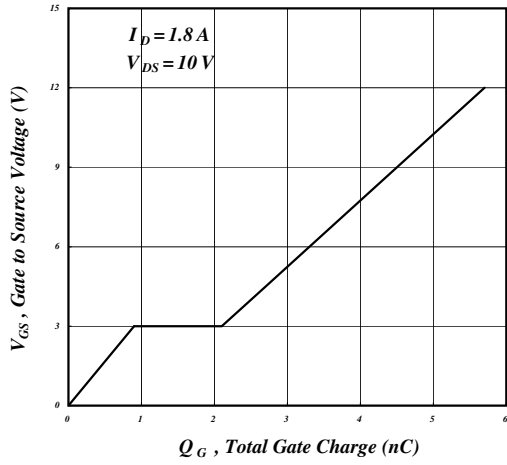


Fig 7. Gate Charge Characteristics

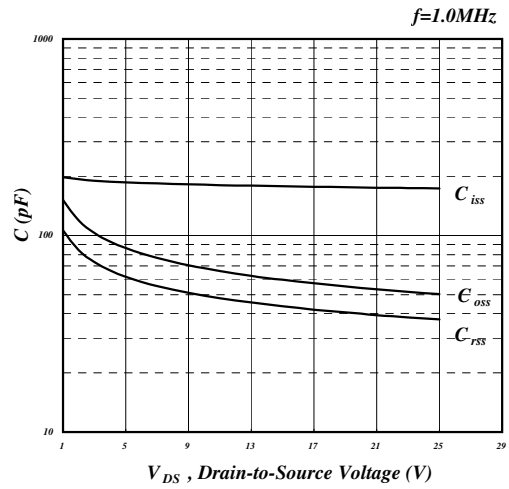


Fig 8. Typical Capacitance Characteristics

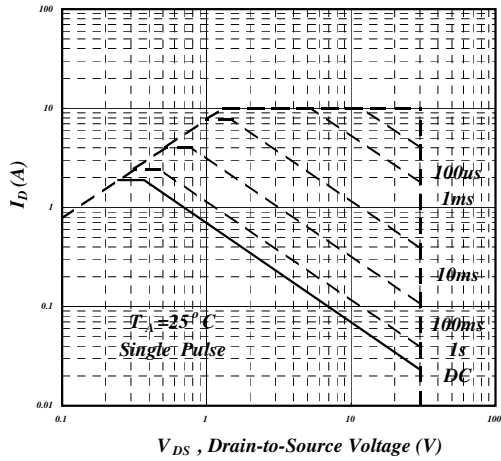


Fig 9. Maximum Safe Operating Area

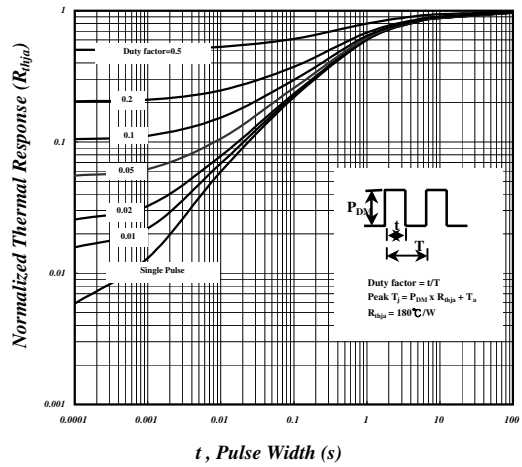


Fig 10. Effective Transient Thermal Impedance

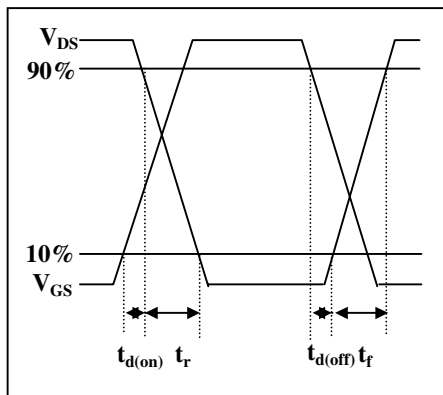


Fig 11. Switching Time Waveform

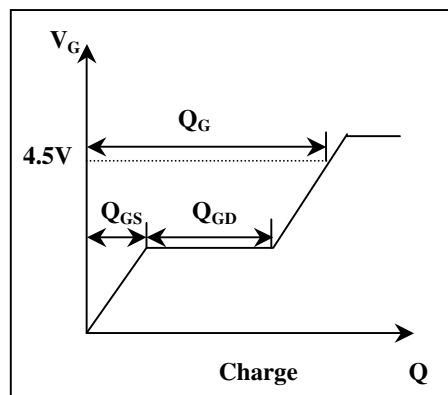


Fig 12. Gate Charge Waveform



P-Channel

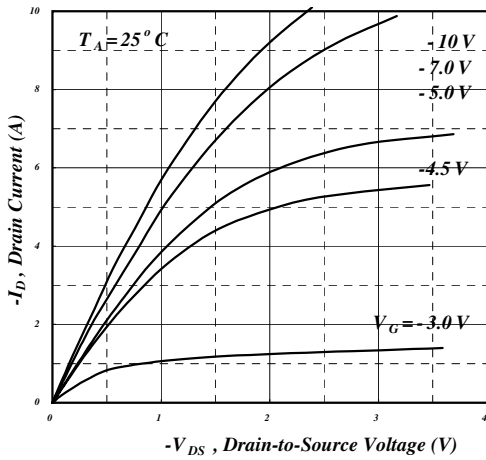


Fig 1. Typical Output Characteristics

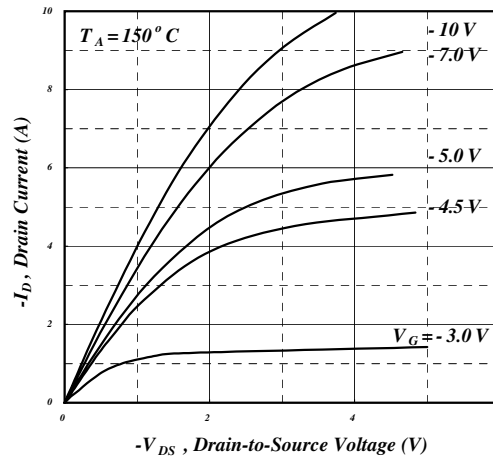


Fig 2. Typical Output Characteristics

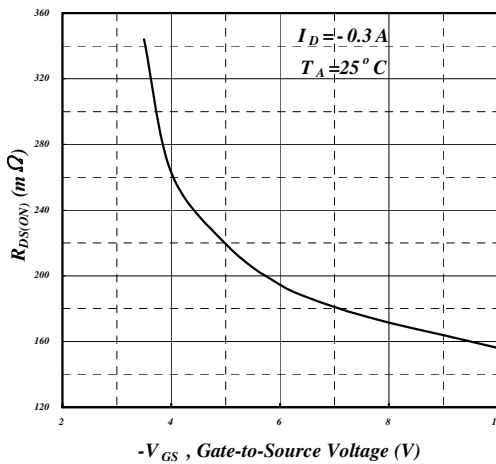


Fig 3. On-Resistance v.s. Gate Voltage

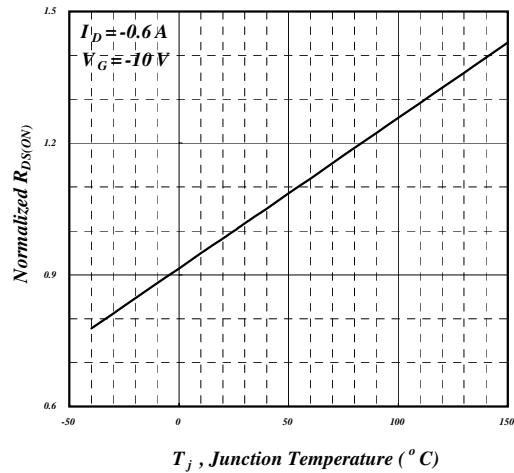


Fig 4. Normalized On-Resistance v.s. Junction Temperature

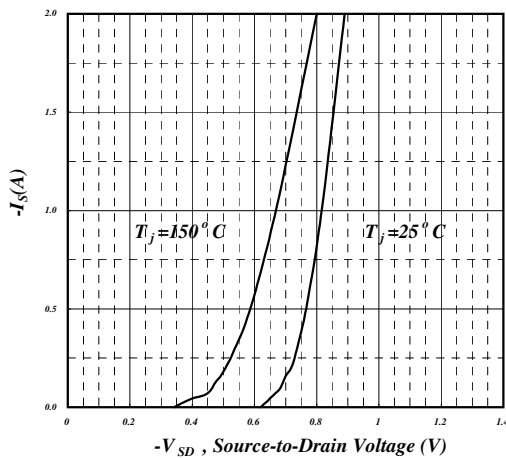


Fig 5. Forward Characteristic of Reverse Diode

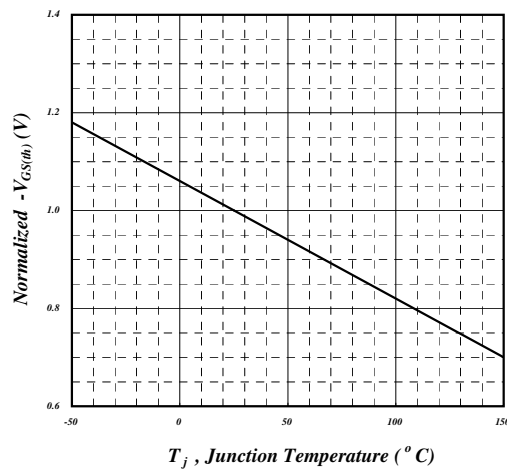


Fig 6. Gate Threshold Voltage v.s. Junction Temperature



P-Channel

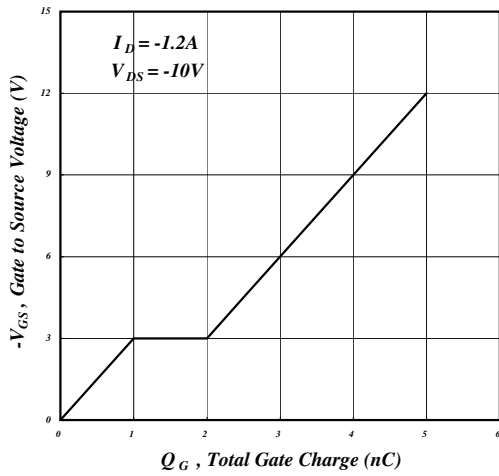


Fig 7. Gate Charge Characteristics

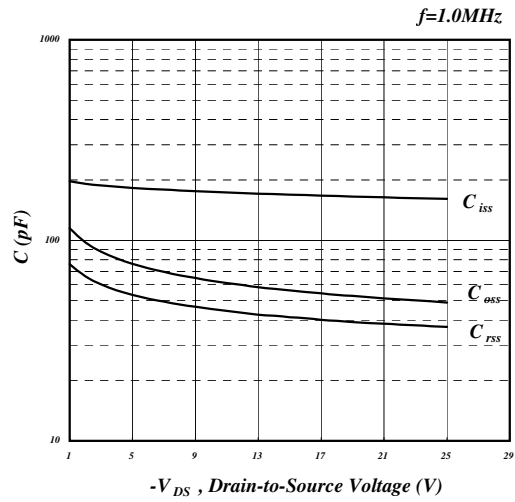


Fig 8. Typical Capacitance Characteristics

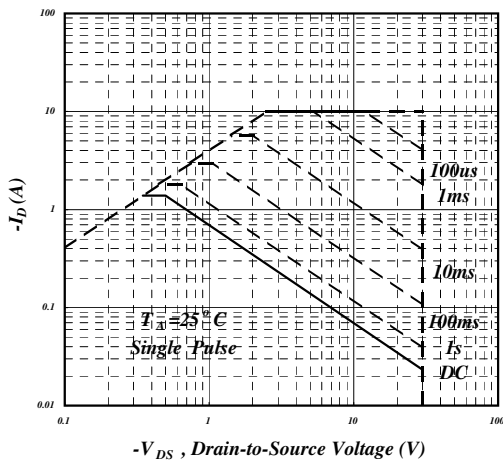


Fig 9. Maximum Safe Operating Area

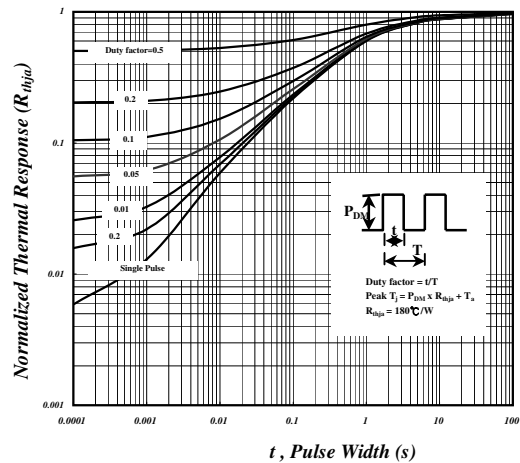


Fig 10. Effective Transient Thermal Impedance

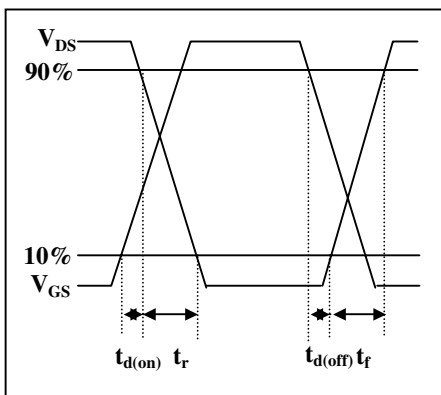


Fig 11. Switching Time Waveform

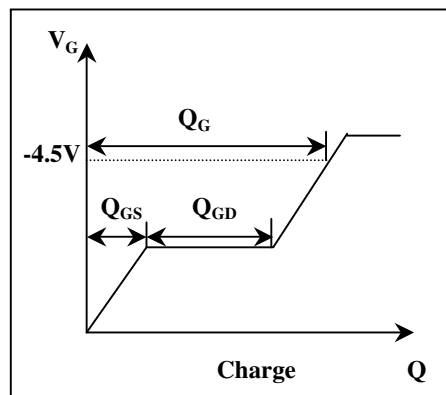
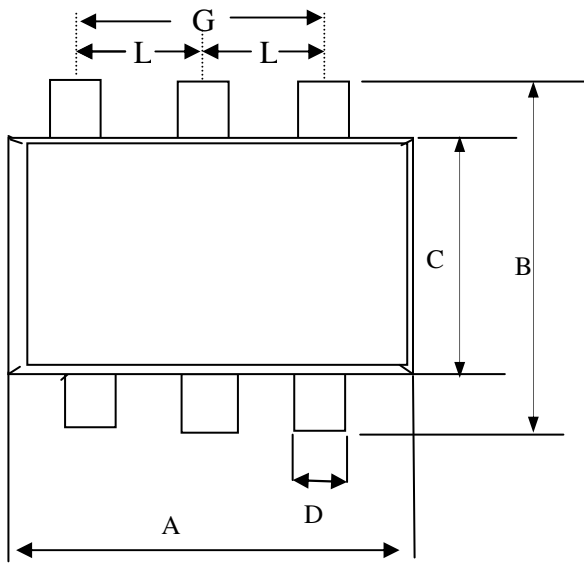


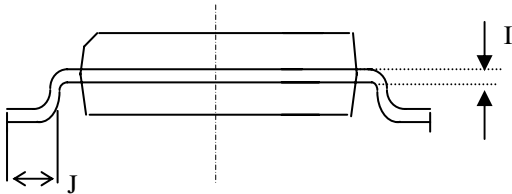
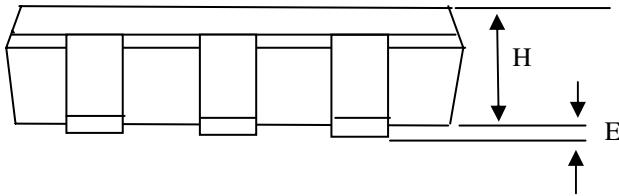
Fig 12. Gate Charge Waveform



### Package Outline : SOT-26



SYMBOLS	Millimeters		
	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	0.43	0.55
E	0.00	0.05	0.10
H	1.20REF		
G	1.90REF		
I	0.12REF		
J	0.37REF		
L	0.95REF		



- 1.All Dimension Are In Millimeters.
- 2.Dimension Does Not Include Mold Protrusions.

### Part Marking Information & Packing : SOT-26

