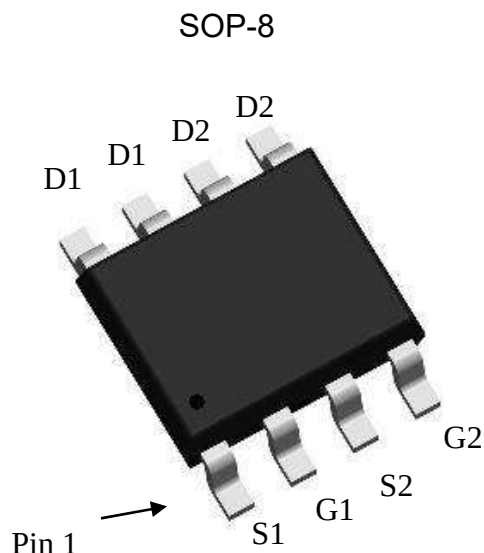


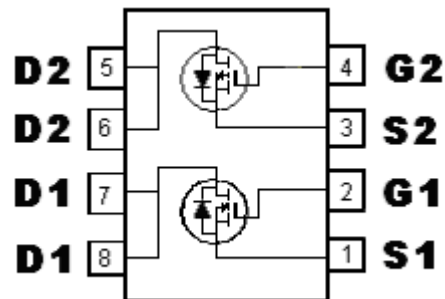
N- AND P-Channel Enhancement Mode MOSFET

Features:

- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Pb-free lead plating and halogen-free package



	N-CH	P-CH
BV_{DSS}	30V	-30V
$I_D@V_{GS}=(-)10V, T_C=25^{\circ}C$	11A	-9.5A
$I_D@V_{GS}=(-)10V, T_A=25^{\circ}C$	8.2A	-6.8A
$R_{DS(on)}(typ.) @V_{GS}=(-)10V$	13 m Ω	27 m Ω
$R_{DS(on)}(typ.) @V_{GS}=(-)4.5V$	20 m Ω	40 m Ω



G : Gate S : Source D : Drain

Ordering Information

Device	Package	Shipping
KSC4503	SOP-8 (Pb-free lead plating and halogen-free package)	2500 pcs / tape & reel
KSC4503	SOP-8 (Pb-free lead plating and halogen-free package)	4000 pcs / tape & reel

Absolute Maximum Ratings (T_C=25°C, unless otherwise noted)

Parameter		Symbol	Limits		Unit
			N-channel	P-channel	
Drain-Source Breakdown Voltage		BV _{DSS}	30	-30	V
Gate-Source Voltage		V _{GS}	±20	±20	
Continuous Drain Current	T _C =25 °C, V _{GS} =10V (-10V)	I _D	11	-9.5	A
	T _C =100 °C, V _{GS} =10V (-10V)		7	-6.0	
Continuous Drain Current (Note 2)	T _A =25 °C, V _{GS} =10V (-10V)		8.2	-6.8	
	T _A =70 °C, V _{GS} =10V (-10V)		6.6	-5.4	
Pulsed Drain Current (Note 1)		I _{DM}	30	-30	
Power Dissipation	T _C =25 °C	P _D	5		W
	T _A =25 °C		2 (Note 2)		
Operating Junction and Storage Temperature Range		T _j ; T _{stg}	-55~+150		°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{th,j-c}	25	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{th,j-a}	62.5 (Note 2)	

Note : 1.Pulse width limited by maximum junction temperature.

2.Surface mounted on 1 in² copper pad of FR-4 board, pulse width≤10s, 135 °C/W when mounted on minimum copper pad

N-Channel Electrical Characteristics (T_C=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	30	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	1.3	-	2.5		V _{DS} =V _{GS} , I _D =250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} =30V, V _{GS} =0V
	-	-	25		V _{DS} =30V, V _{GS} =0V, T _j =125°C
*R _{DS(ON)}	-	13	20	mΩ	V _{GS} =10V, I _D =6A
	-	20	28		V _{GS} =4.5V, I _D =4A
*G _{FS}	-	5	-	S	V _{DS} =10V, I _D =6A
Dynamic					
C _{iss}	-	508	-	pF	V _{DS} =15V, V _{GS} =0V, f=1MHz
C _{oss}	-	75	-		
C _{rss}	-	59	-		
*t _{d(ON)}	-	5.6	-	ns	V _{DS} =15V, I _D =3A, V _{GS} =10V, R _G =10Ω
*t _r	-	16	-		
*t _{d(OFF)}	-	31	-		
*t _f	-	9.4	-		
*Q _g	-	12.6	-	nC	V _{DS} =15V, I _D =6A, V _{GS} =10V
*Q _{gs}	-	1.6	-		
*Q _{gd}	-	2.6	-		

Body Diode					
*I _S	-	-	8.2	A	
*I _{SM}	-	-	30		
*V _{SD}	-	0.85	1.3	V	V _{GS} =0V, I _S =8.2A
*t _{rr}	-	7.2	-	ns	I _F =8.2A, V _{GS} =0V, dI _F /dt=100A/μs
*Q _{rr}	-	3	-	nC	

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

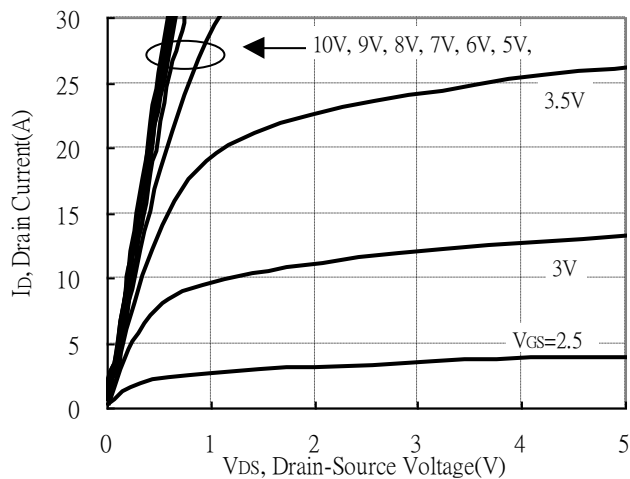
P-Channel Electrical Characteristics (T_c=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-30	-	-	V	V _{GS} =0V, I _D =-250μA
V _{GS(th)}	-1.3	-	-2.5		V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	-1	μA	V _{DS} =-30V, V _{GS} =0V
	-	-	-25		V _{DS} =-30V, V _{GS} =0V, T _j =125°C
*R _{DS(ON)}	-	27	36	mΩ	V _{GS} =-10V, I _D =-6A
	-	40	55		V _{GS} =-4.5V, I _D =-4A
*G _{FS}	-	7.5	-	S	V _{DS} =-10V, I _D =-6A
Dynamic					
C _{iss}	-	925	-	pF	V _{DS} =-15V, V _{GS} =0V, f=1MHz
C _{oss}	-	112	-		
C _{rss}	-	91	-		
*t _{d(ON)}	-	7	-	ns	V _{DS} =-15V, I _D =-3.5A, V _{GS} =-10V, R _G =10Ω
*t _r	-	18.8	-		
*t _{d(OFF)}	-	94.4	-		
*t _f	-	51.8	-		
*Q _g	-	19.6	-	nC	V _{DS} =-15V, I _D =-6A, V _{GS} =-10V
*Q _{gs}	-	3.1	-		
*Q _{gd}	-	3.9	-		
Body Diode					
*I _S	-	-	-6.8	A	
*I _{SM}	-	-	-30		
*V _{SD}	-	-0.88	-1.3	V	V _{GS} =0V, I _S =-6.8A
*t _{rr}	-	9.3	-	ns	I _F =6.8A, V _{GS} =0V, dI _F /dt=100A/μs
*Q _{rr}	-	4.3	-	nC	

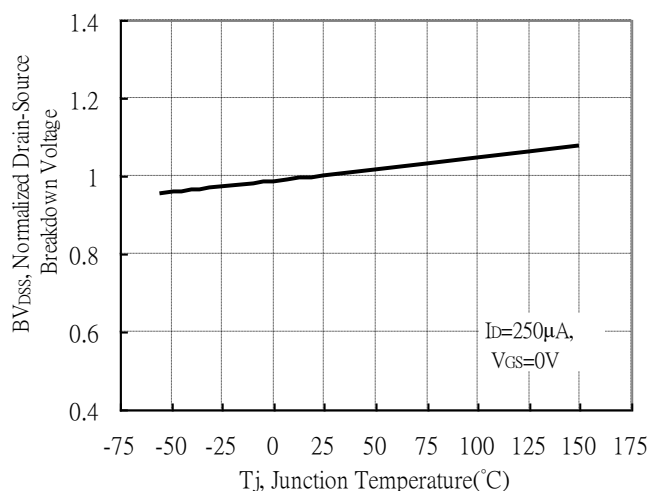
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics : Q1(N-channel)

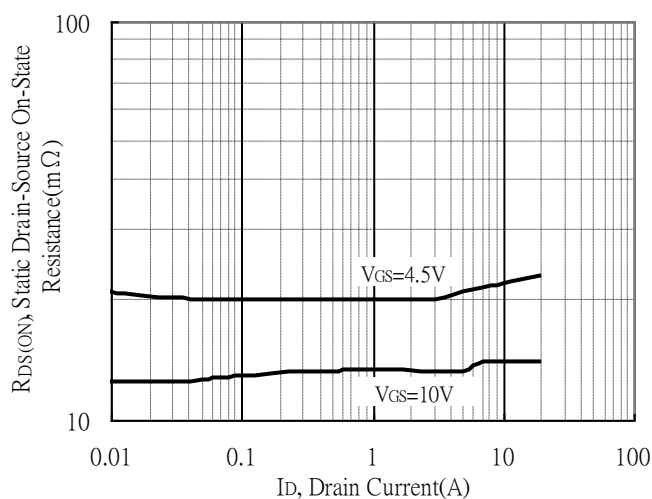
Typical Output Characteristics



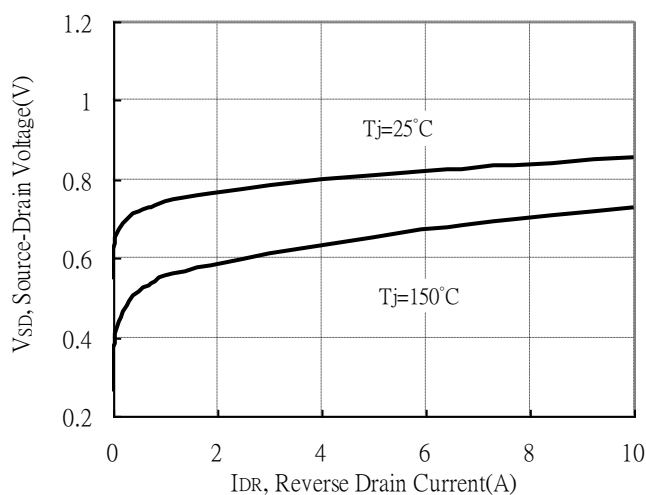
Brekdown Voltage vs Ambient Temperature



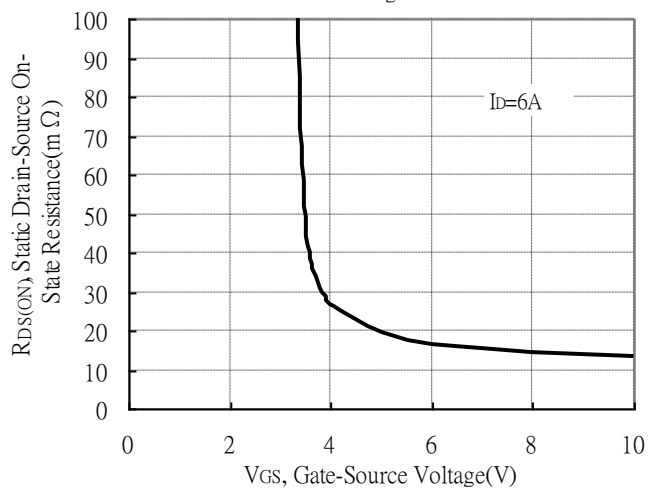
Static Drain-Source On-State resistance vs Drain Current



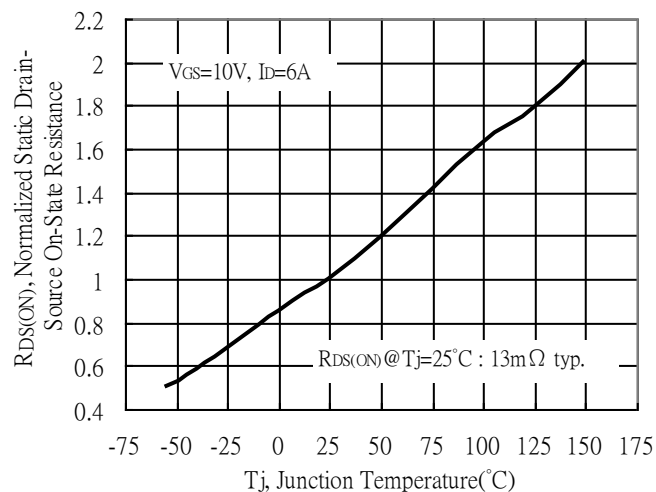
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

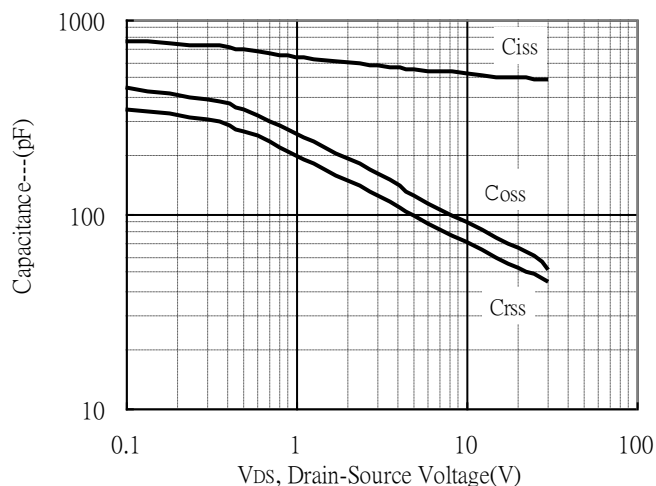


Drain-Source On-State Resistance vs Junction Temperature

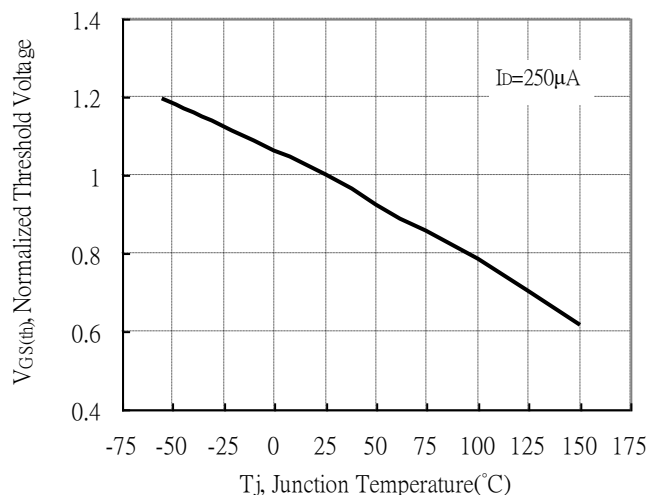


Typical Characteristics(Cont.) : Q1(N-channel)

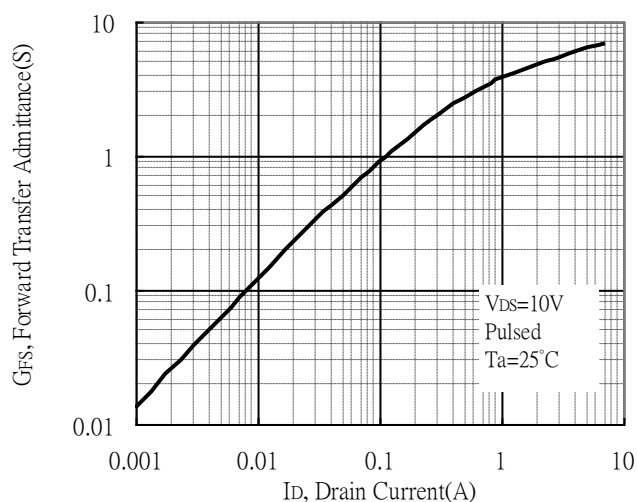
Capacitance vs Drain-to-Source Voltage



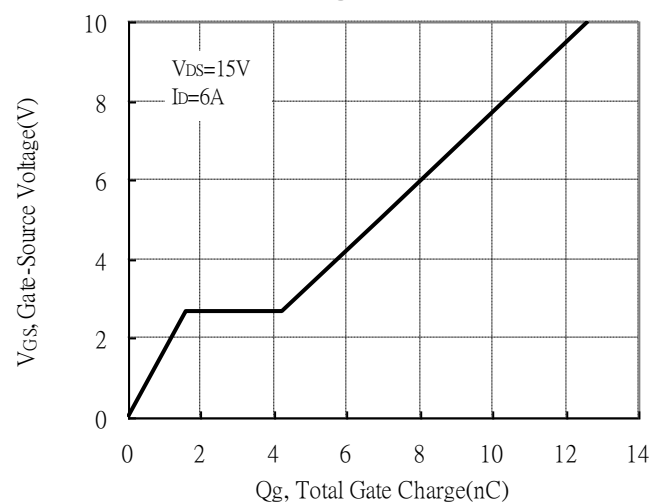
Threshold Voltage vs Junction Temperature



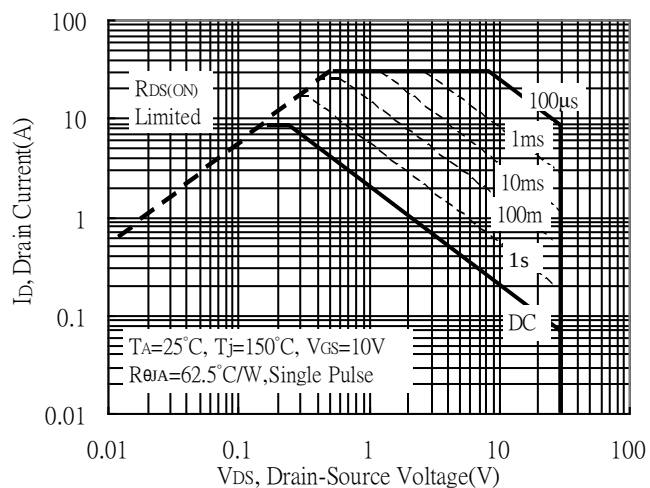
Forward Transfer Admittance vs Drain Current



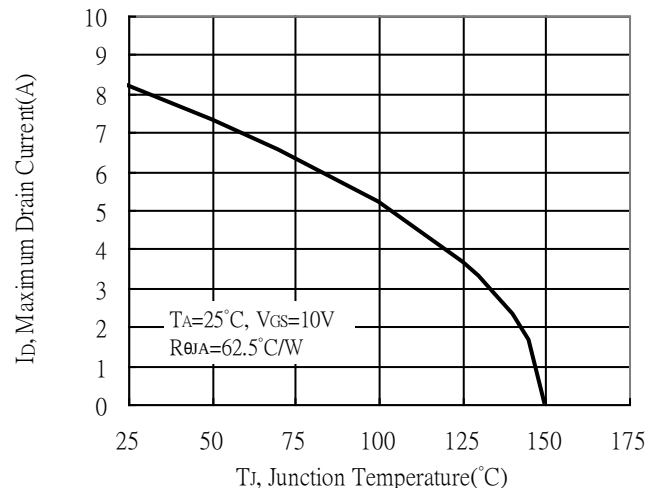
Gate Charge Characteristics



Maximum Safe Operating Area

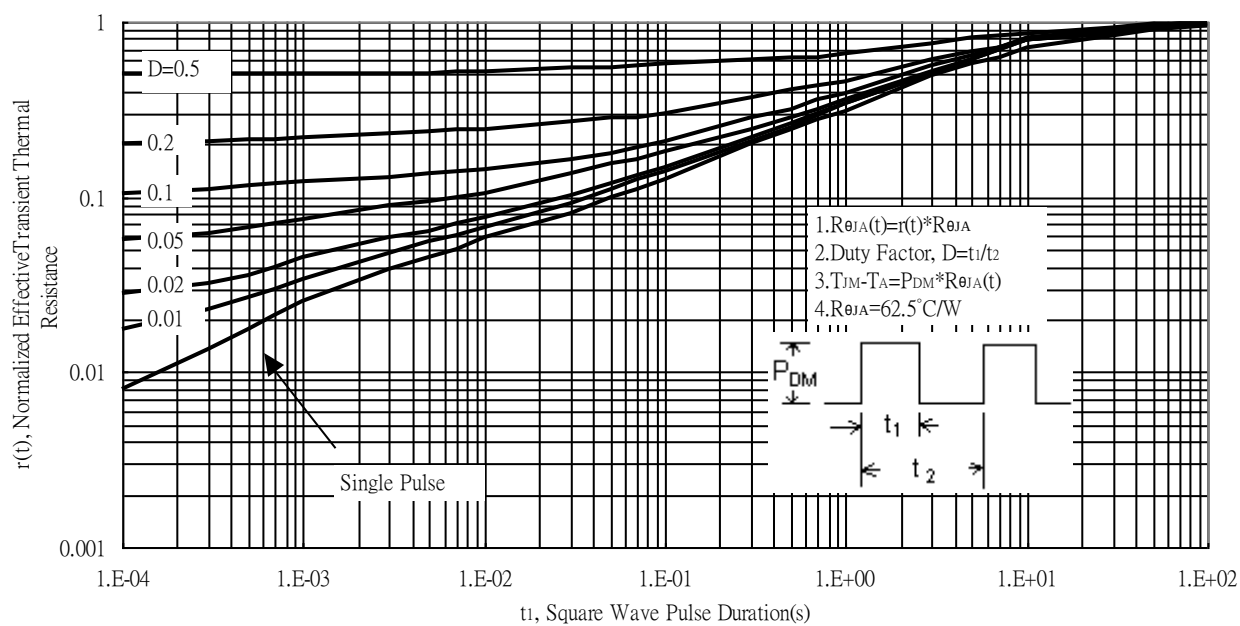


Maximum Drain Current vs Junction Temperature



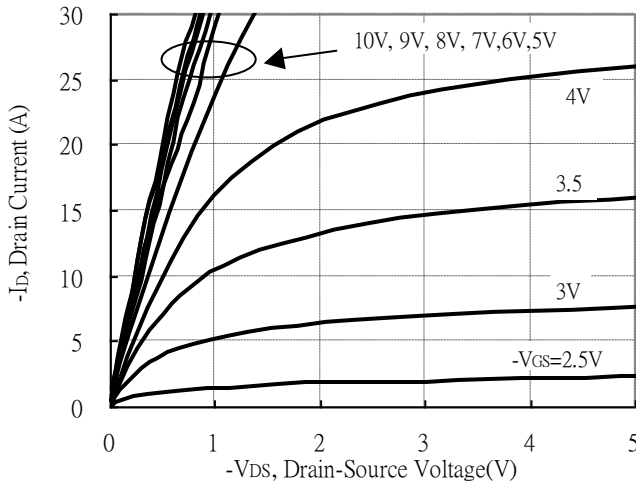
Typical Characteristics(Cont.) : Q1(N-channel)

Transient Thermal Response Curves

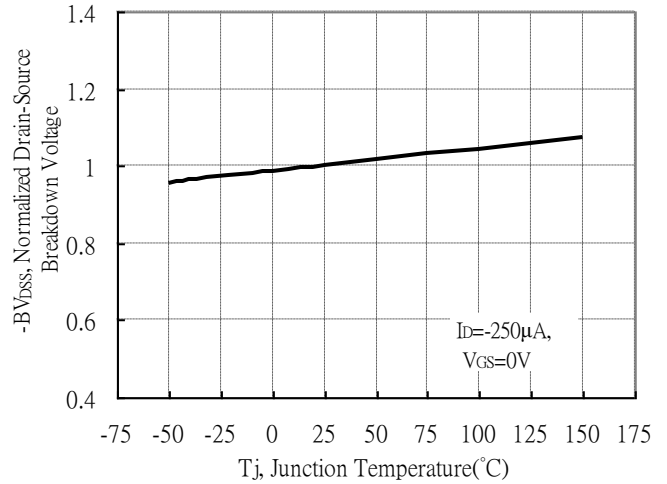


Typical Characteristics : Q2(P-channel)

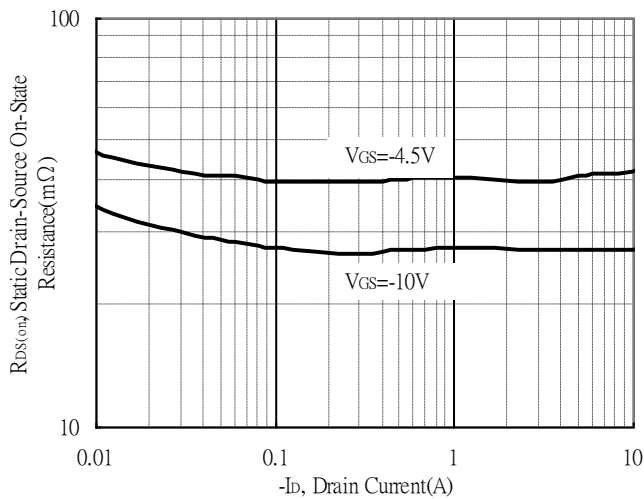
Typical Output Characteristics



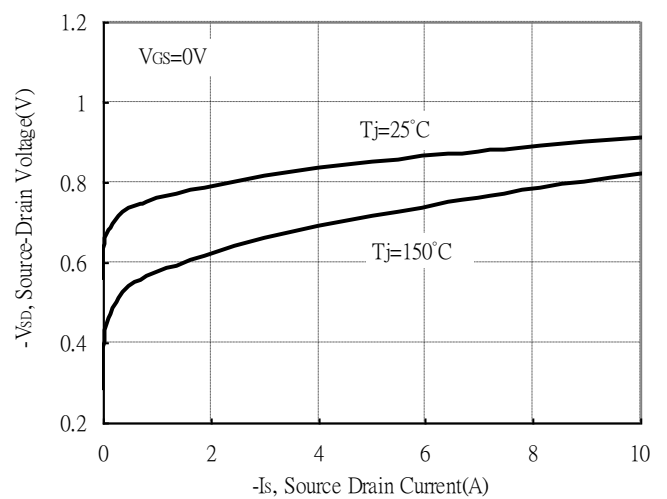
Breakdown Voltage vs Ambient Temperature



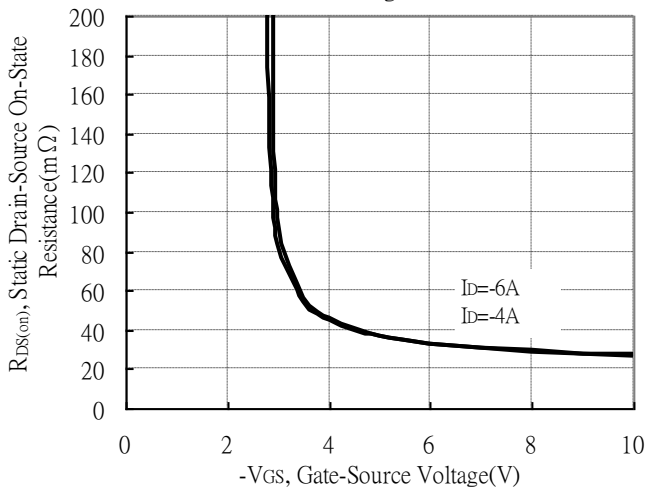
Static Drain-Source On-State resistance vs Drain Current



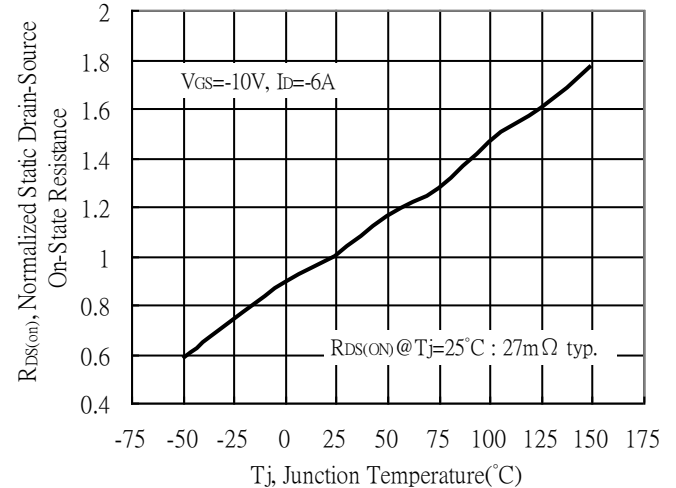
Source Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

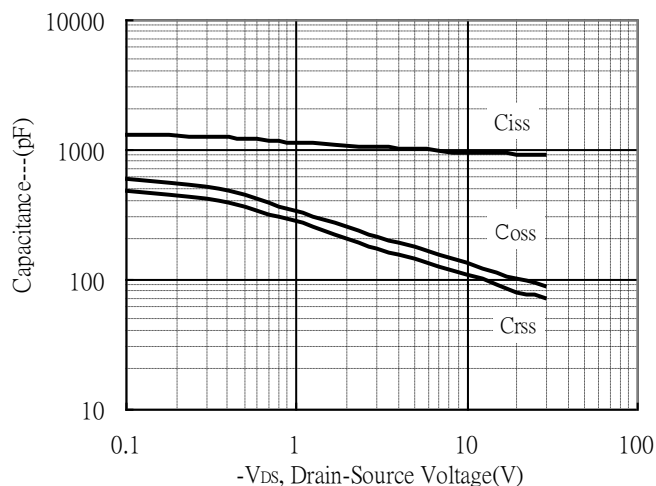


Drain-Source On-State Resistance vs Junction Temperature

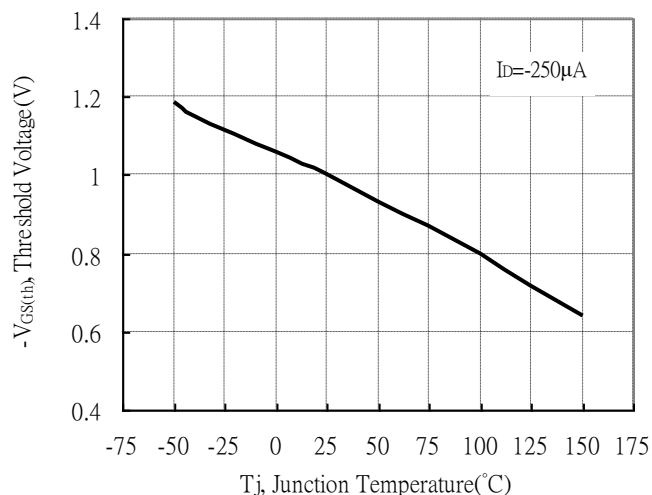


Typical Characteristics(Cont.) : Q2(P-channel)

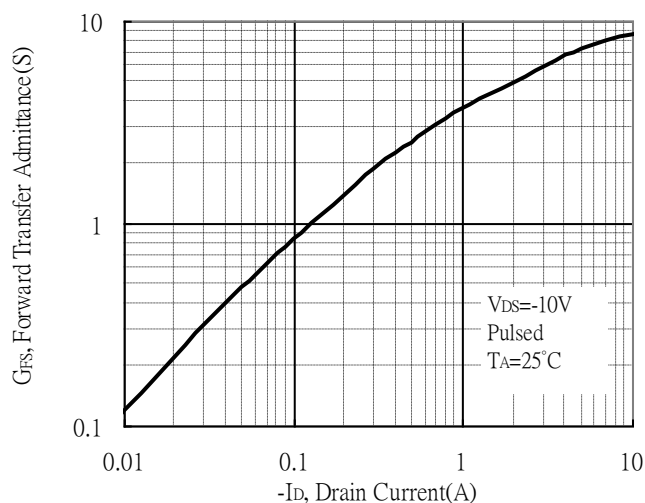
Capacitance vs Drain-to-Source Voltage



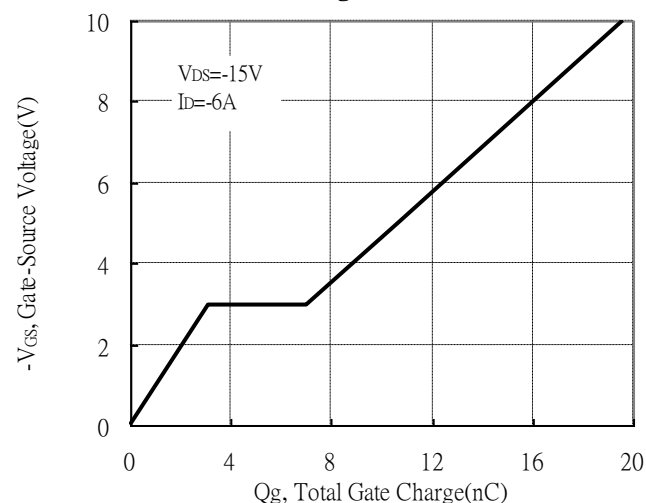
Threshold Voltage vs Junction Temperature



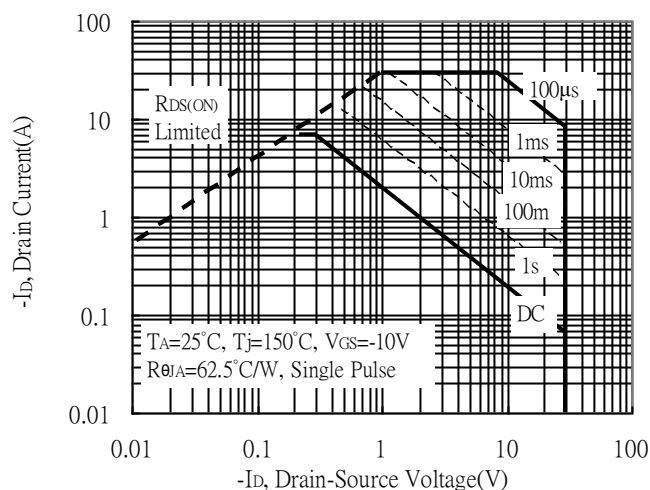
Forward Transfer Admittance vs Drain Current



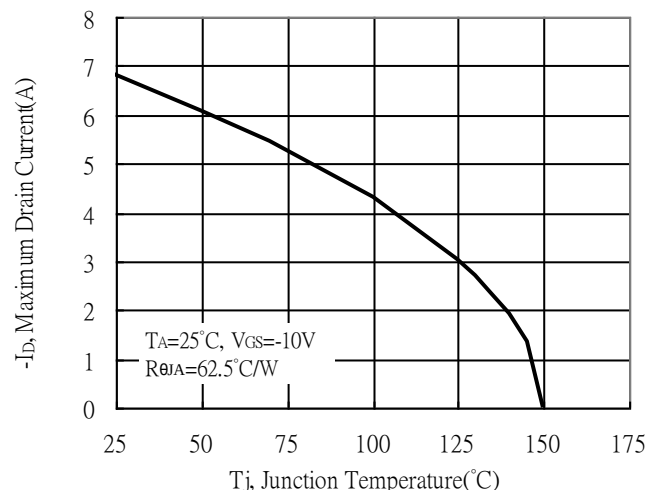
Gate Charge Characteristics



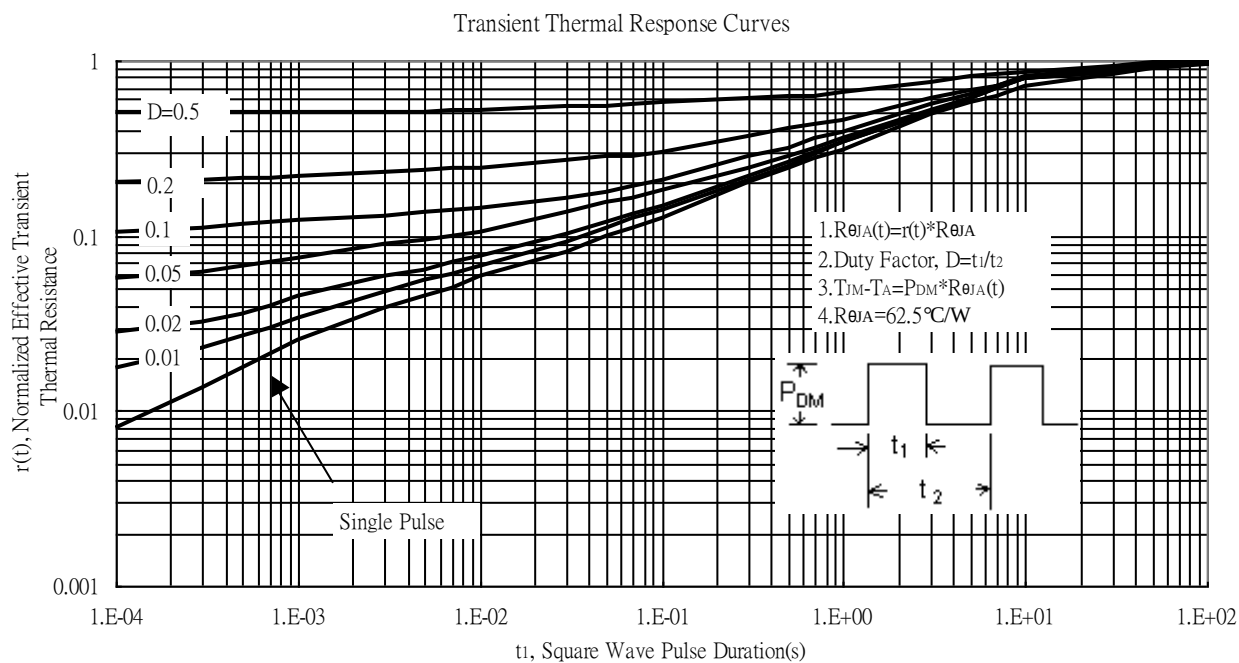
Maximum Safe Operating Area



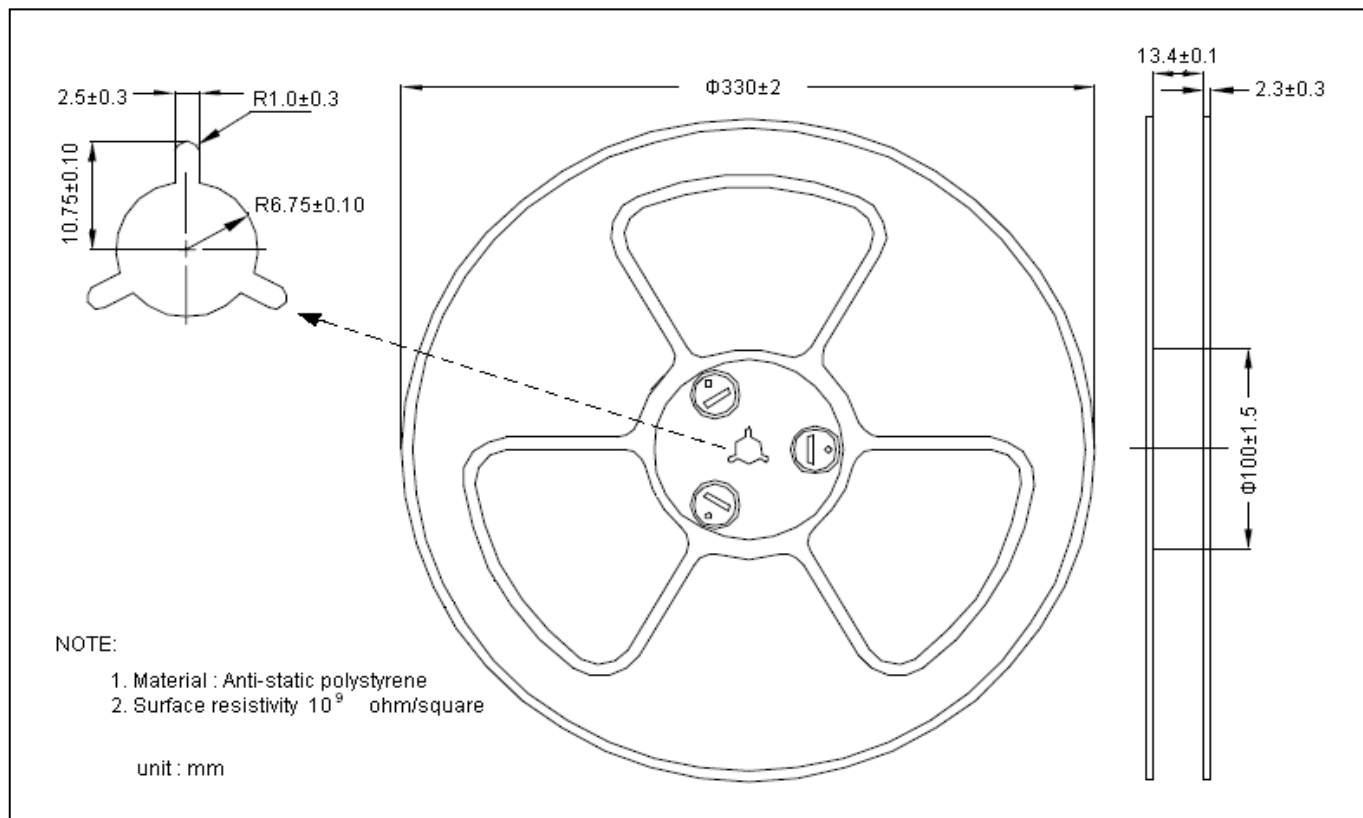
Maximum Drain Current vs Junction Temperature



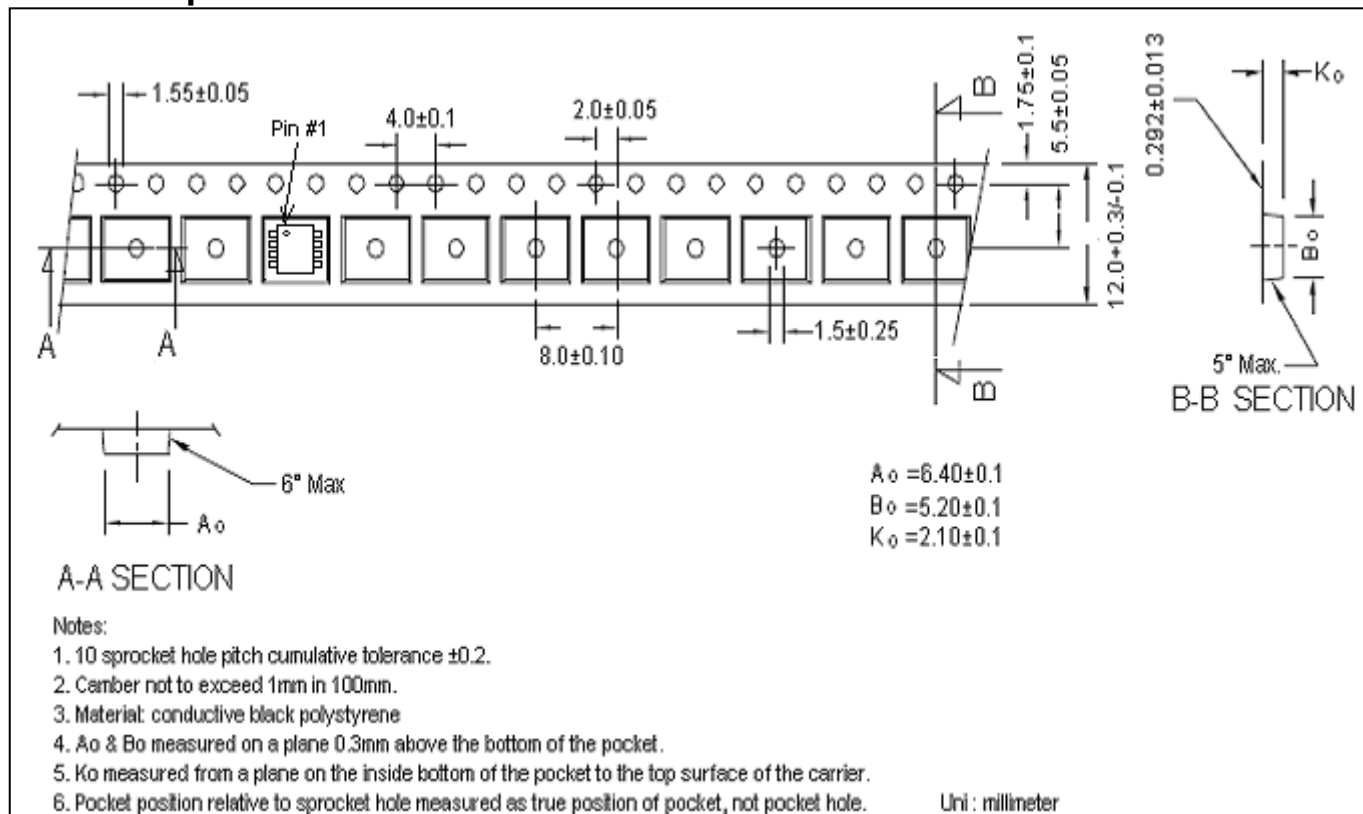
Typical Characteristics(Cont.) : Q2(P-channel)



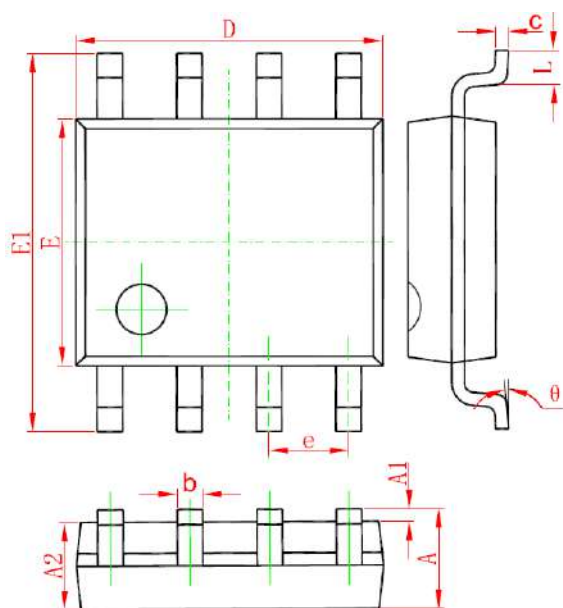
Reel Dimension



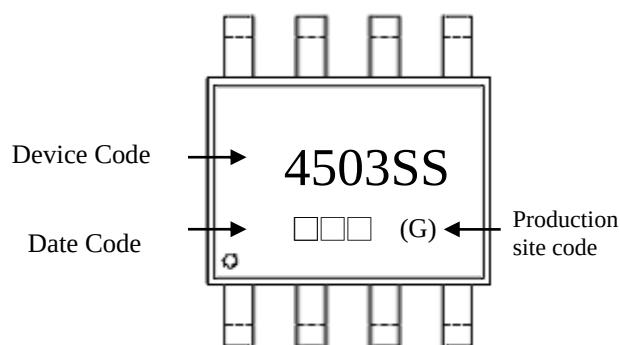
Carrier Tape Dimension



SOP-8 Dimension



Marking:



Date Code(counting from left to right) :

1st code: year code, the last digit of Christian year

2nd code : month code, Jan→A, Feb→B, Mar→C, Apr→D

May→E, Jun→F, Jul→G, Aug→H, Sep→J,

Oct→K, Nov→L, Dec→M

3rd and 4th codes : production serial number, 01~99

Production site code : blank→ JCET, G →GEM

8-Lead SOP-8 Plastic Package

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069	E	3.800	4.000	0.150	0.157
A1	0.100	0.250	0.004	0.010	E1	5.800	6.200	0.228	0.244
A2	1.350	1.550	0.053	0.061	e	*1.270		*0.050	
b	0.330	0.510	0.013	0.020	L	0.400	1.270	0.016	0.050
c	0.170	0.250	0.006	0.010	θ	0°	8°	0°	8°
D	4.700	5.100	0.185	0.200					