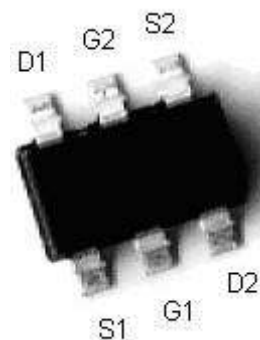


N-CHANNEL MOSFET (dual transistors)

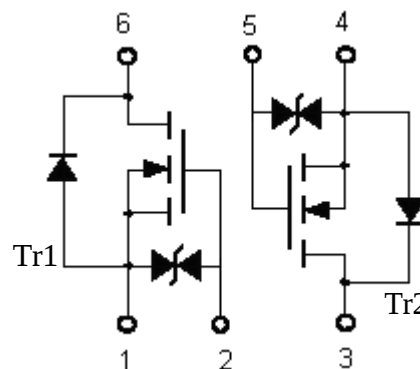
Features:

- Low on-resistance
- High ESD capability
- High speed switching
- Low-voltage drive(1.8V)
- Pb-free lead plating and halogen-free package



SOT-363

BV_{DSS}	20V
$I_D@V_{GS}=4.5V, T_A=25^\circ C$	760mA
$R_{DS(on)}@V_{GS}=4.5V, I_D=600mA$	370m Ω (typ)
$R_{DS(on)}@V_{GS}=2.5V, I_D=400mA$	500m Ω (typ)
$R_{DS(on)}@V_{GS}=1.8V, I_D=350mA$	1.1 Ω (typ)



The following characteristics apply to both Tr1 and Tr2

Absolute Maximum Ratings ($T_A=25^\circ C$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current @ $T_A=25^\circ C, V_{GS}=4.5V$ (Note 3)	I_D	760	mA
Continuous Drain Current @ $T_A=85^\circ C, V_{GS}=4.5V$ (Note 3)		550	
Pulsed Drain Current (Notes 1, 2)	I_{DM}	3	A
Maximum Power Dissipation (Note 3)	P_D	300	mW
		160	
ESD susceptibility		2000 (Note 4)	V
Operating Junction and Storage Temperature	T_j, T_{stg}	-55~+150	$^\circ C$

Note : 1. Pulse width limited by maximum junction temperature.
2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Surface mounted on 1 in² copper pad of FR-4 board, $t \leq 5s$.
4. Human body model, 1.5k Ω in series with 100pF

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient(PCB mounted) (Note)	Rth,ja	417	°C/W

Note : Surface mounted on 1 in² copper pad of FR-4 board, t_s≤5s.

Electrical Characteristics (T_j=25°C, unless otherwise noted)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	20	-	-	V	V _{GS} =0V, I _D =250μA
ΔBV _{DSS} /ΔT _j	-	0.02	-	V/°C	Reference to 25°C, I _D =1mA
V _{GS(th)}	0.5	0.92	1.2	V	V _{DS} =V _{GS} , I _D =250μA
I _{GSS}	-	-	±10	μA	V _{GS} =±10V, V _{DS} =0V
I _{DSS}	-	-	1		V _{DS} =20V, V _{GS} =0V
	-	-	10		V _{DS} =16V, V _{GS} =0V (T _j =70°C)
*R _{DS(ON)}	-	370	450	mΩ	V _{GS} =4.5V, I _D =600mA
	-	500	650		V _{GS} =2.5V, I _D =400mA
		1100	1300		V _{GS} =1.8V, I _D =350mA
*G _{FS}	-	1.4	-	S	V _{DS} =5V, I _D =600mA
Dynamic					
C _{iss}	-	60	-	pF	V _{DS} =10V, V _{GS} =0V, f=1MHz
C _{oss}	-	14	-		
C _{rss}	-	9	-		
t _{d(ON)}	-	4	-	ns	V _{DS} =10V, I _D =600mA, V _{GS} =10V R _G =3.3Ω , R _D =16.7Ω
t _r	-	10	-		
t _{d(OFF)}	-	15	-		
t _f	-	2	-		
Q _g	-	1.3	-	nC	V _{DS} =16V, I _D =600mA, V _{GS} =4.5V
Q _{gs}	-	0.3	-		
Q _{gd}	-	0.5	-		
Source-Drain Diode					
*V _{SD}	-	0.81	1.2	V	V _{GS} =0V, I _S =500mA

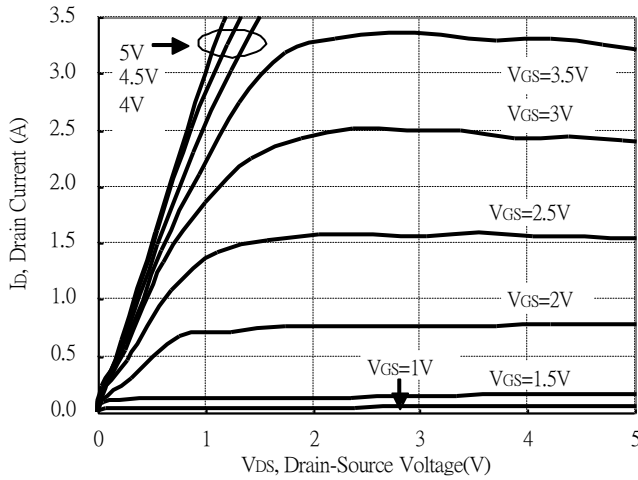
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

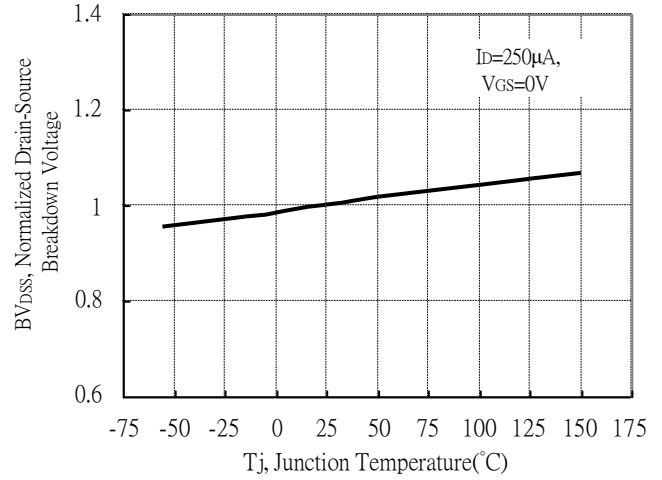
Device	Package	Shipping
KWDN6303S6R	SOT-363 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel

Typical Characteristics

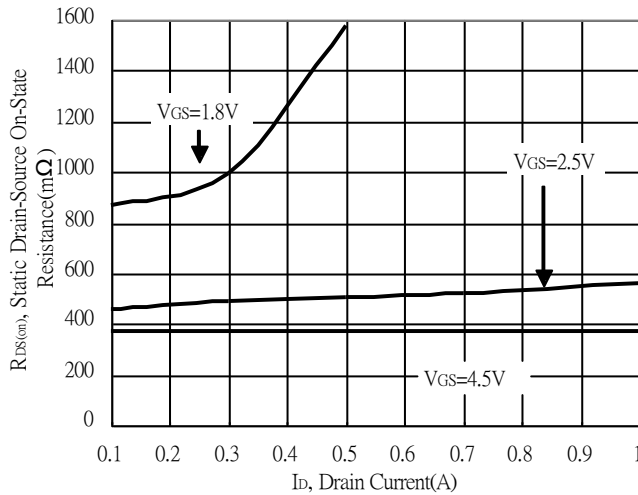
Typical Output Characteristics



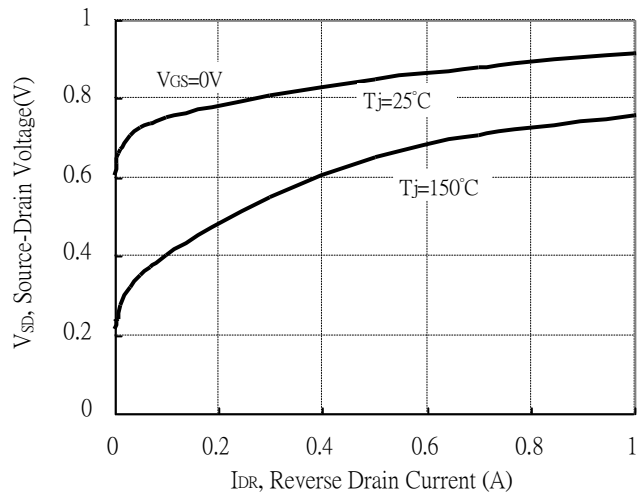
Breakdown Voltage vs Ambient Temperature



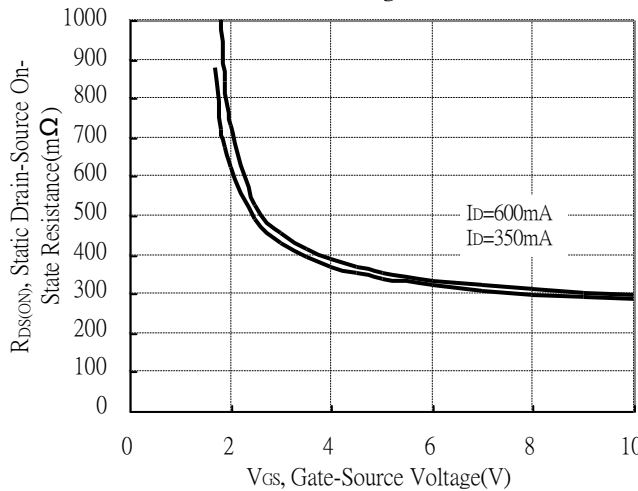
Static Drain-Source On-State resistance vs Drain Current



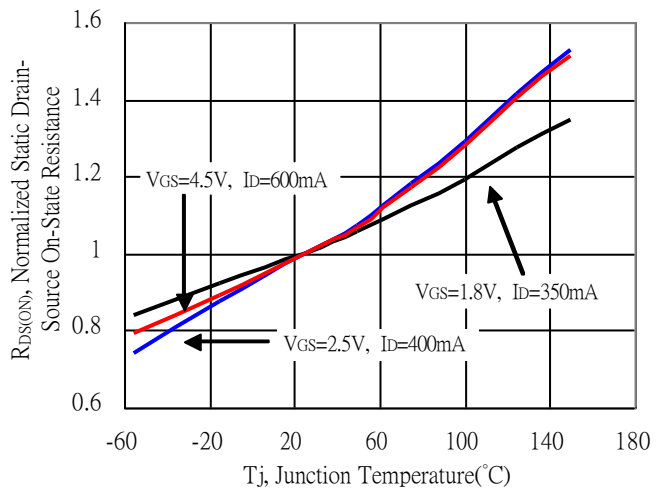
Reverse Drain Current vs Source-Drain Voltage



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

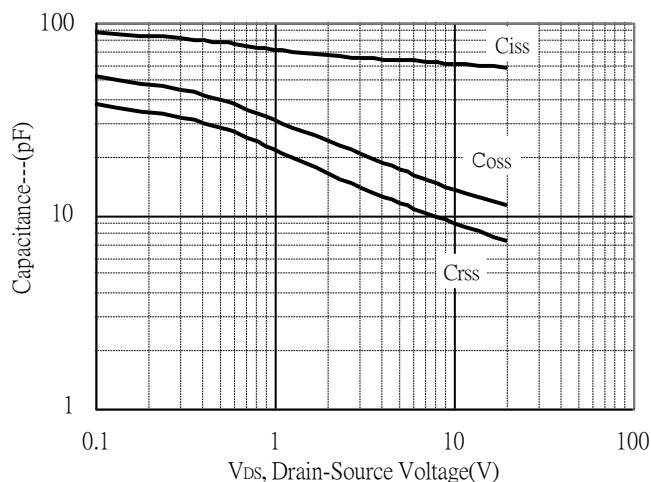


Drain-Source On-State Resistance vs Junction Temperature

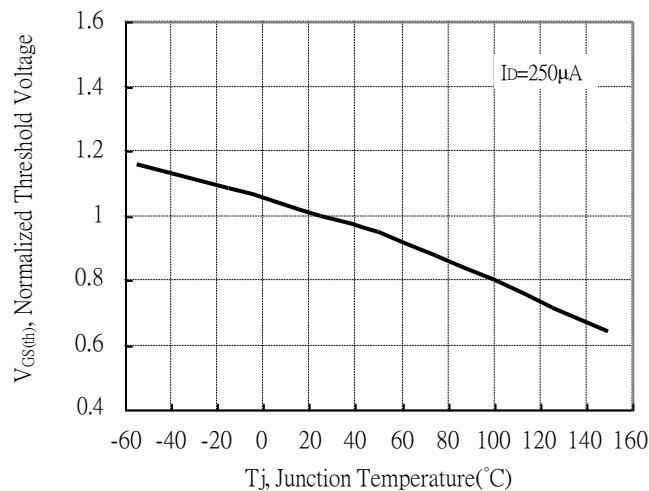


Typical Characteristics(Cont.)

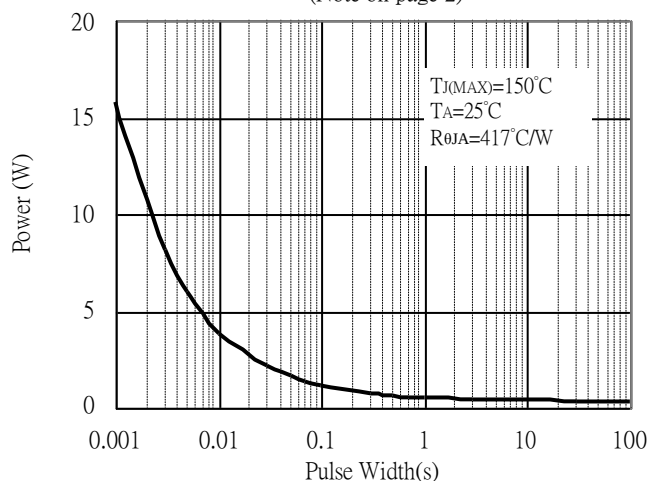
Capacitance vs Drain-to-Source Voltage



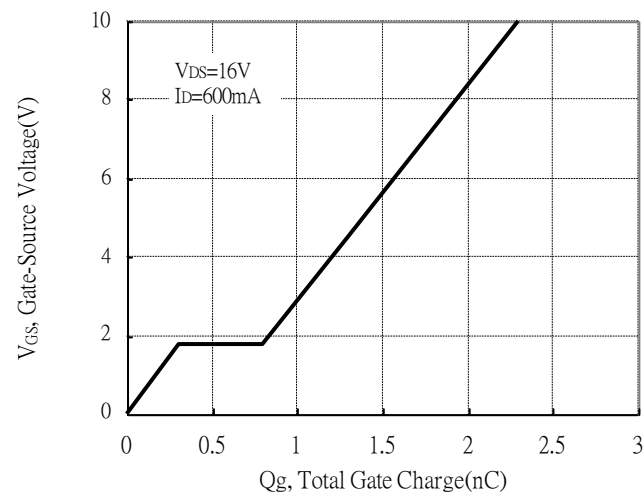
Threshold Voltage vs Junction Temperature



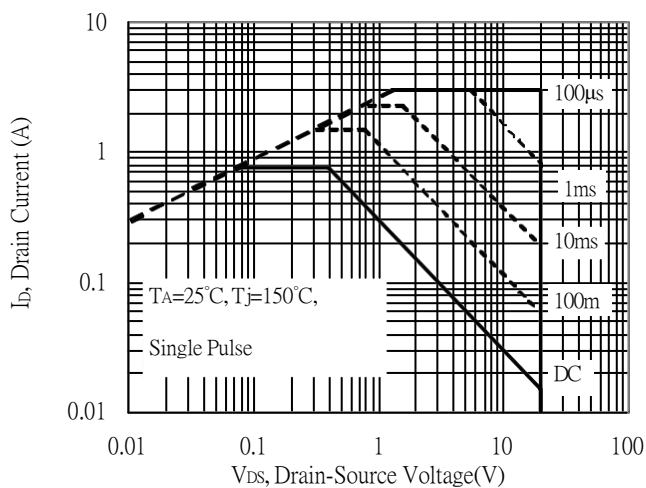
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)



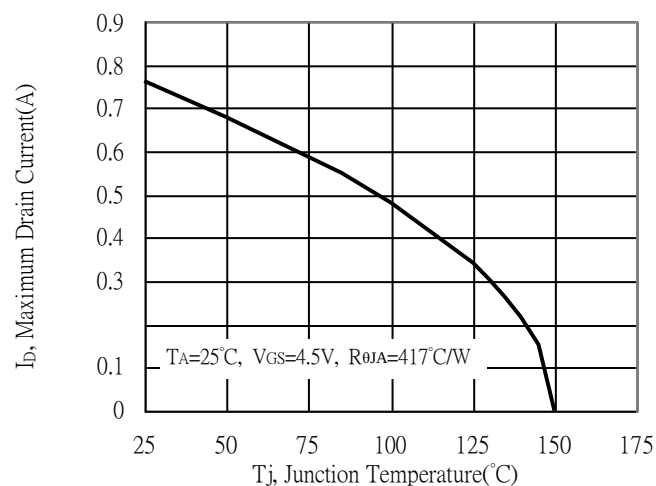
Gate Charge Characteristics



Maximum Safe Operating Area

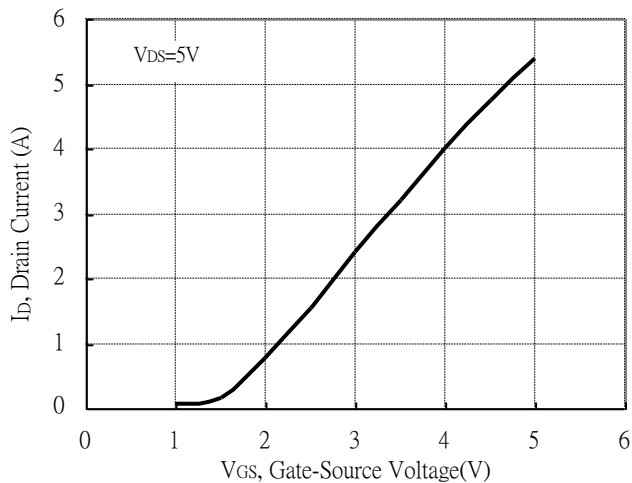


Maximum Drain Current vs Junction Temperature

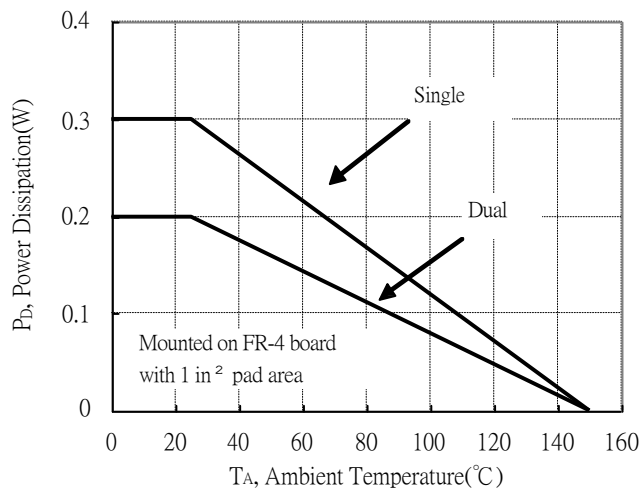


Typical Characteristics(Cont.)

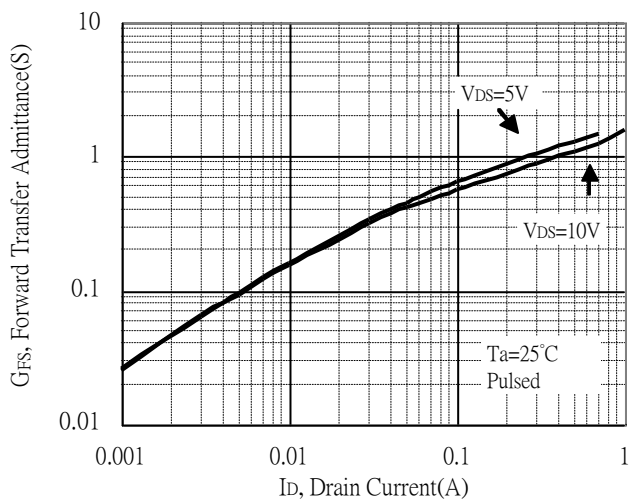
Typical Transfer Characteristics



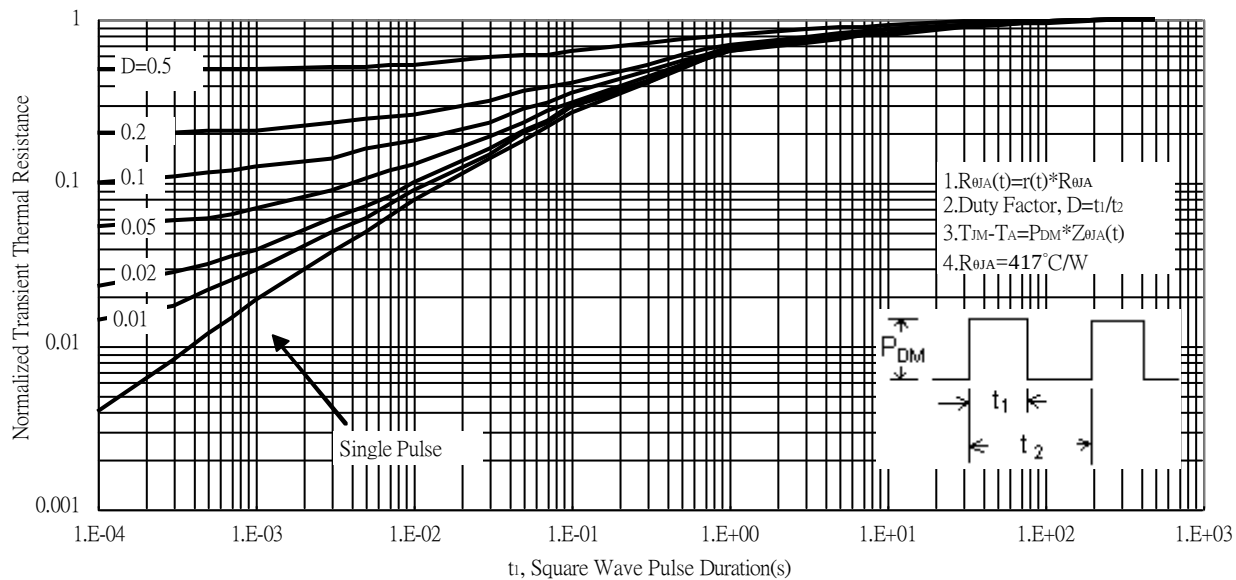
Power Derating Curve



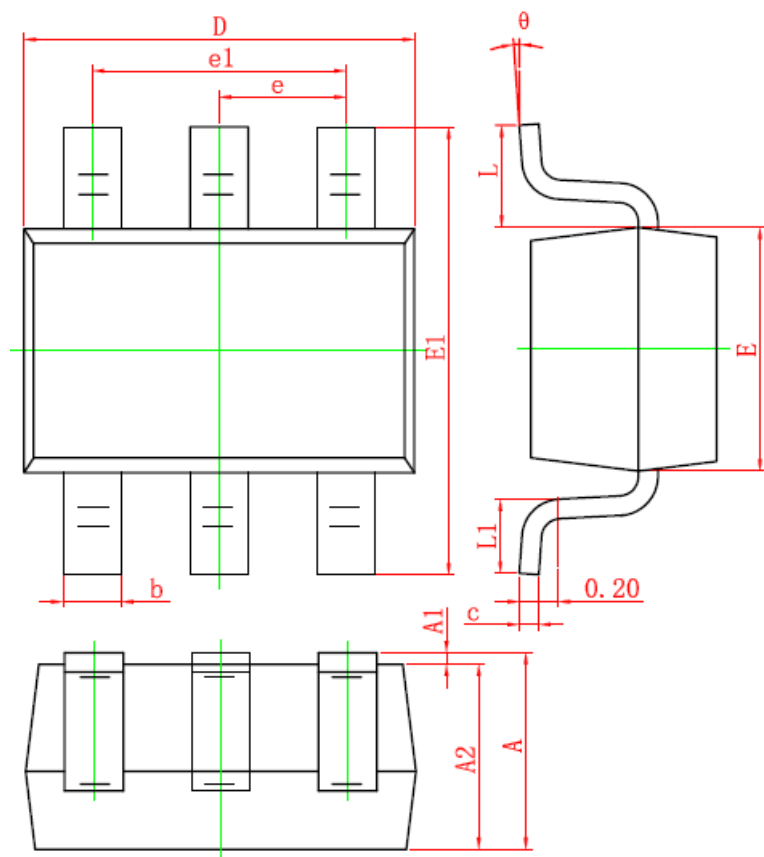
Forward Transfer Admittance vs Drain Current



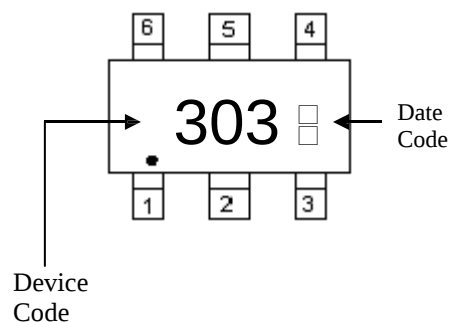
Transient Thermal Response Curves



SOT-363 Dimension



Marking:



6-Lead SOT-363 Plastic
 Surface Mounted Package
 Code: S6R

Style:

Pin 1. Source1 (S1)
 Pin 2. Gate1 (G1)
 Pin 3. Drain2 (D2)
 Pin 4. Source2 (S2)
 Pin 5. Gate2 (G2)
 Pin 6. Drain1 (D1)

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650	TYP	0.026	TYP
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.150	0.350	0.006	0.014	L	0.525	REF	0.021	REF
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	theta	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					