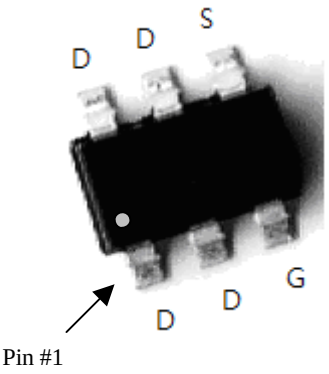
N-Channel Enhancement Mode MOSFET

SOT-363

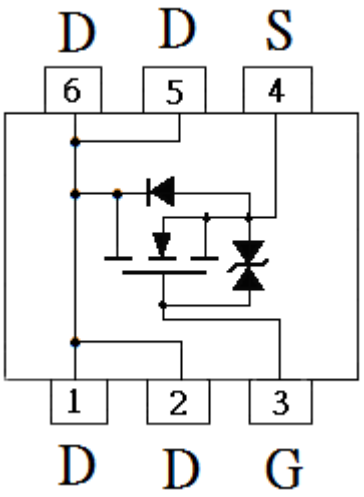
Features:

- Low on-resistance
- High speed switching
- ESD protected gate
- Pb-free lead plating and halogen-free package



Pin #1

BV_{DSS}	30V
I_D@V_{GS}=10V, T_A=25°C	2.3A
R_{DSON}@V_{GS}=10V, I_D=2A	65mΩ (typ)
R_{DSON}@V_{GS}=4.5V, I_D=1.7A	80mΩ (typ)



Ordering Information

Device	Package	Shipping
KWB55N03KS6	SOT-363 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current @ T_A=25°C, V_{GS}=10V (Note 3)	I_D	2.3	A
Continuous Drain Current @ T_A=70°C, V_{GS}=10V (Note 3)		1.8	
Pulsed Drain Current (Notes 1, 2)	I_{DM}	14	
Maximum Power Dissipation (Note 3)	P_D	750	mW
Maximum Power Dissipation (Note 4)		480	
Operating Junction and Storage Temperature	Tj, Tstg	-55~+150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	120	°C/W
Thermal Resistance, Junction-to-Ambient (Note 3)	$R_{\theta JA}$	167	
Thermal Resistance, Junction-to-Ambient (Note 4)		260	

Note : 1. Pulse width limited by maximum junction temperature.
2. Pulse width≤ 300μs, duty cycle≤2%.
3. Surface mounted on a 1 in² pad of 2 oz. copper.
4. Surface mounted on a minimum pad.

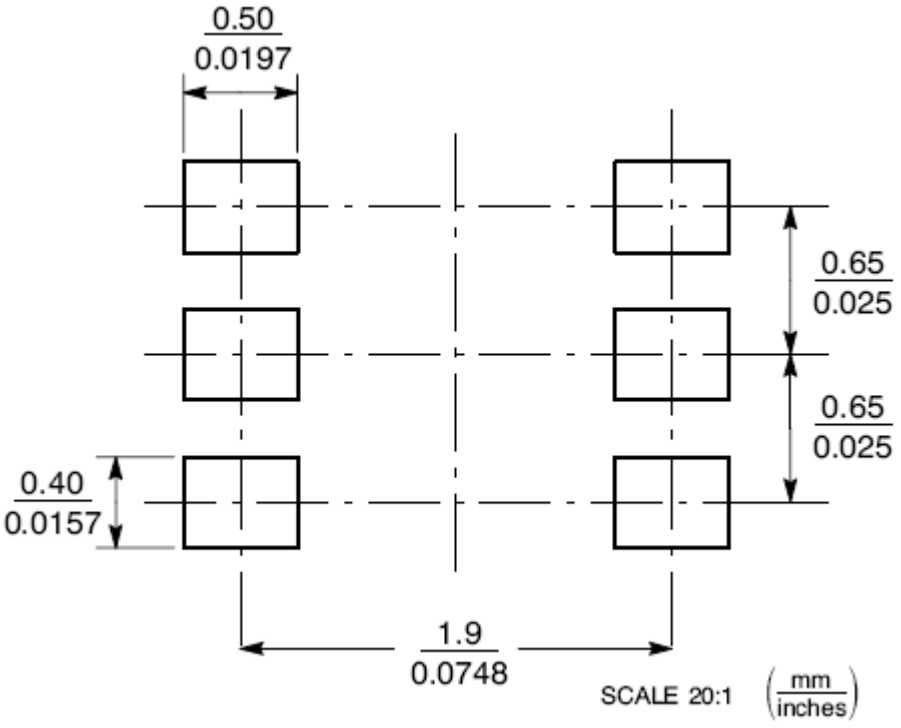
Electrical Characteristics (Tj=25°C, unless otherwise noted)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	30	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	1	-	2.5		V_{DS}=V_{GS}, I_D=250μA
I_{GSS}	-	-	±10	μA	V_{GS}=±16V, V_{DS}=0V
I_{DSS}	-	-	1		V_{DS}=24V, V_{GS}=0V
	-	-	5		V_{DS}=24V, V_{GS}=0V @Tj=55°C
*$R_{DS(ON)}$	-	65	115	mΩ	V_{GS}=10V, I_D=2A
	-	80	155		V_{GS}=4.5V, I_D=1.7A
*G_{FS}	-	3.3	-	S	V_{DS}=5V, I_D=1A
Dynamic					
Ciss	-	166	-	pF	V_{DS}=15V, V_{GS}=0V, f=1MHz
Coss	-	50	-		
Crss	-	32	-		
$t_{d(ON)}$	-	3.6	-	ns	V_{DS}=15V, I_D=1A, V_{GS}=10V, R_G=6Ω
t_r	-	15	-		
$t_{d(OFF)}$	-	10.4	-		
t_f	-	4.6	-		

Qg	-	2.8	-	nC	V_{DS}=15V, I_D=2A, V_{GS}=5V
Qgs	-	0.9	-		
Qgd	-	0.9	-		
Source-Drain Diode					
*V_{SD}	-	0.75	1.2	V	V_{GS}=0V, I_S=0.42A
*trr	-	7	-	ns	I_F=1A, dI_F/dt=100A/μs
*Qrr	-	2	-	nC	

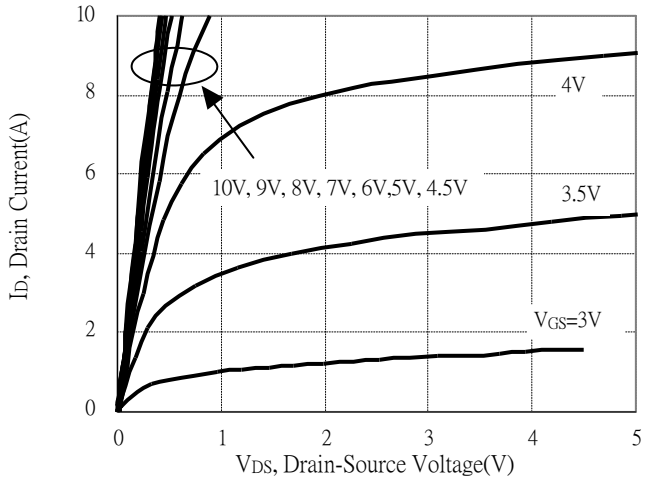
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Recommended Soldering Footprint

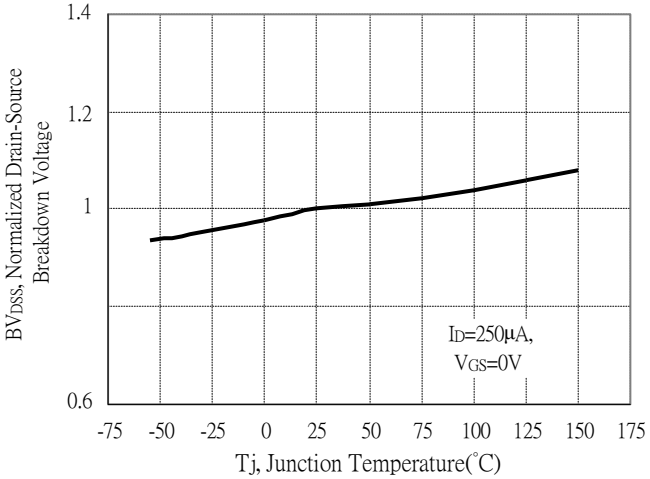


Typical Characteristics

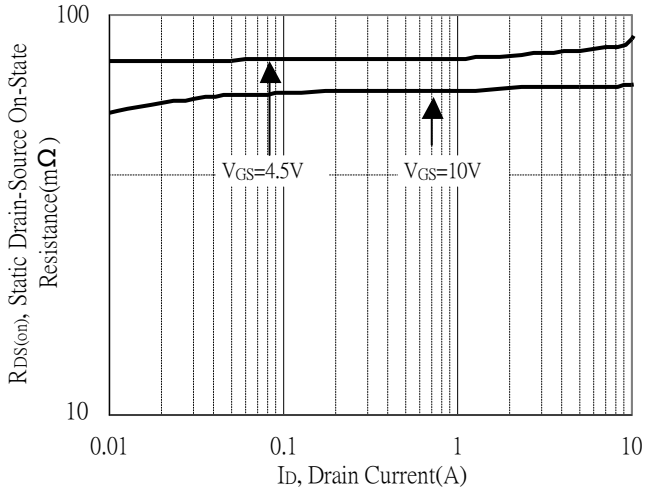
Typical Output Characteristics



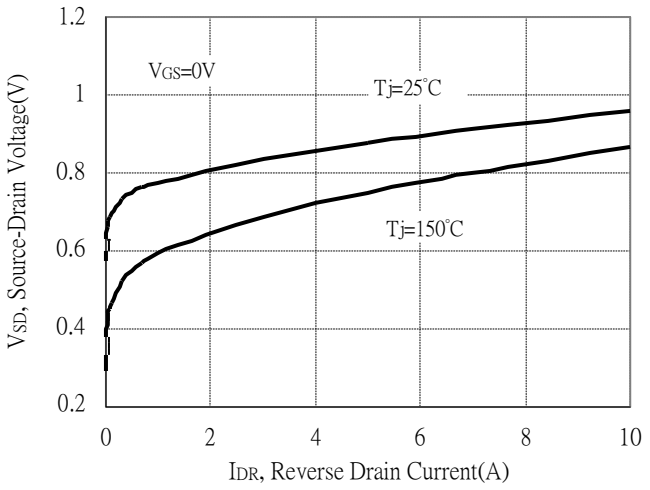
Brekdown Voltage vs Ambient Temperature



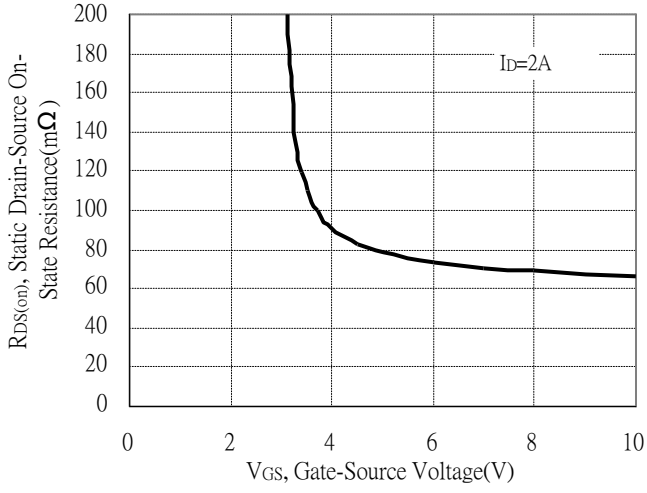
Static Drain-Source On-State resistance vs Drain Current



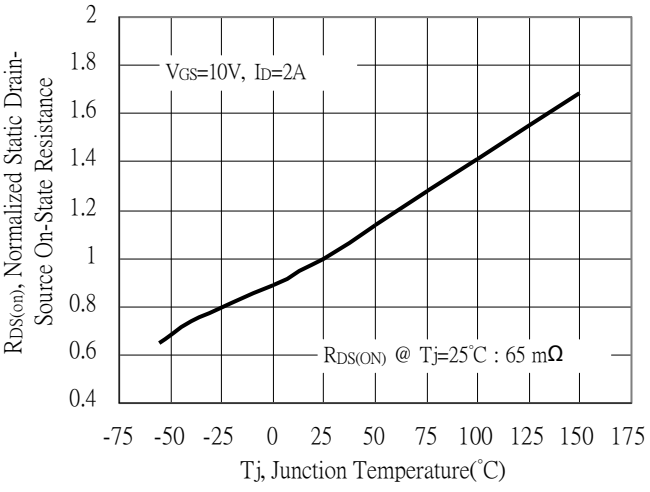
Reverse Drain Current vs Source-Drain Voltage



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

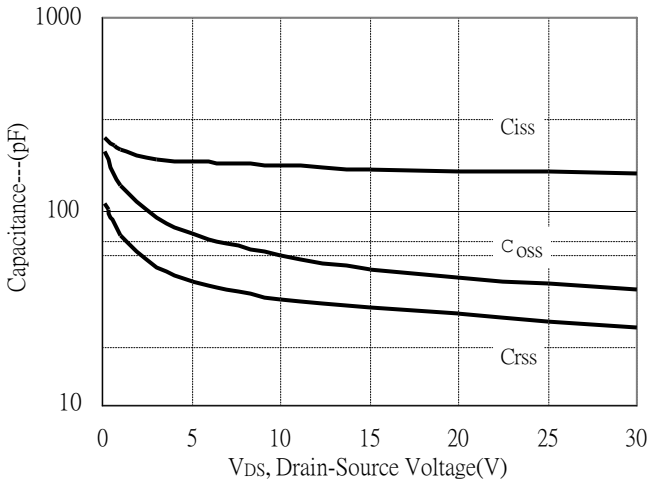


Drain-Source On-State Resistance vs Junction Tempearture

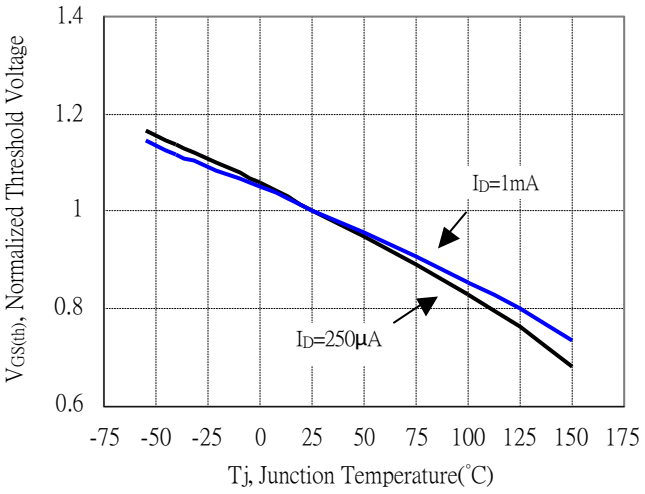


Typical Characteristics(Cont.)

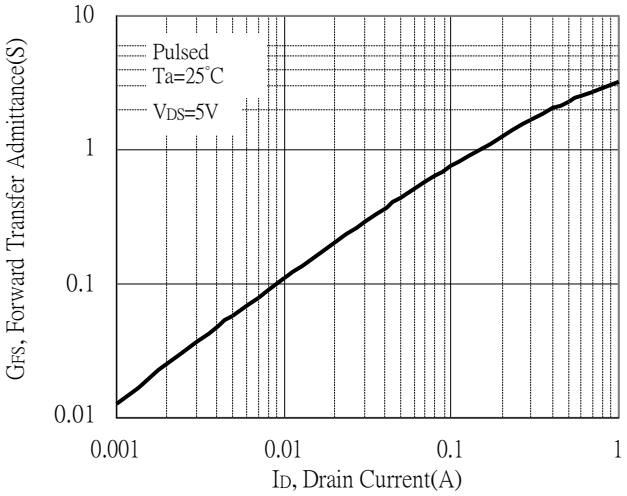
Capacitance vs Drain-to-Source Voltage



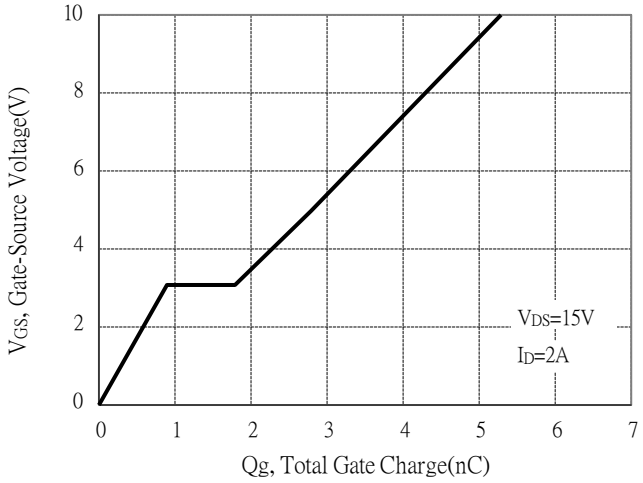
Threshold Voltage vs Junction Tempearture



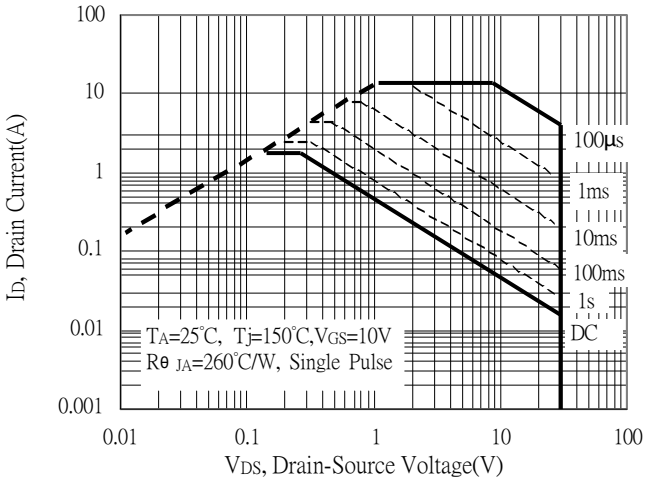
Forward Transfer Admittance vs Drain Current



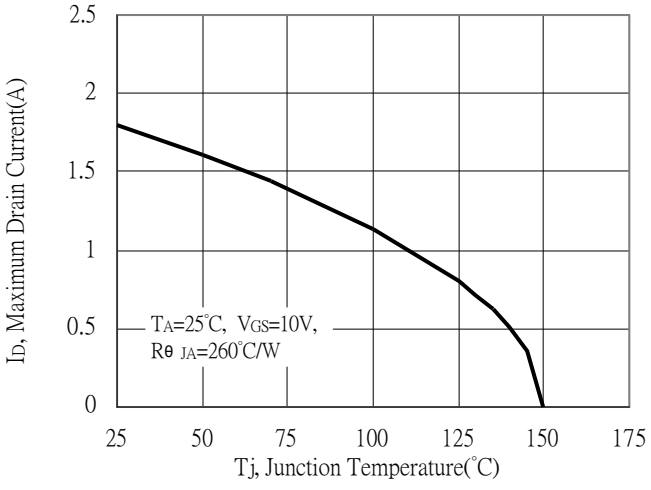
Gate Charge Characteristics



Maximum Safe Operating Area

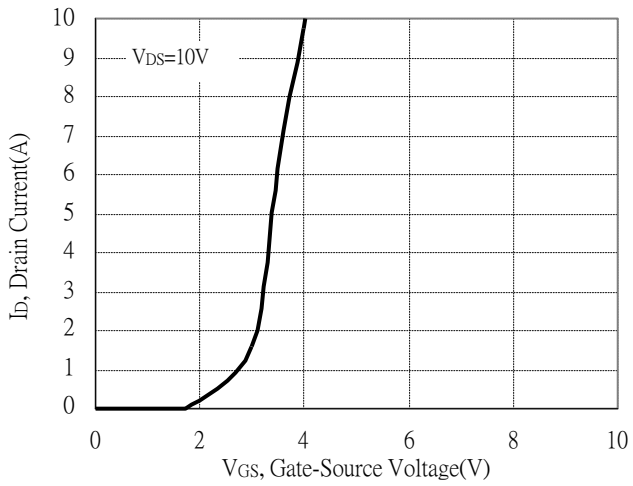


Maximum Drain Current vs JunctionTemperature

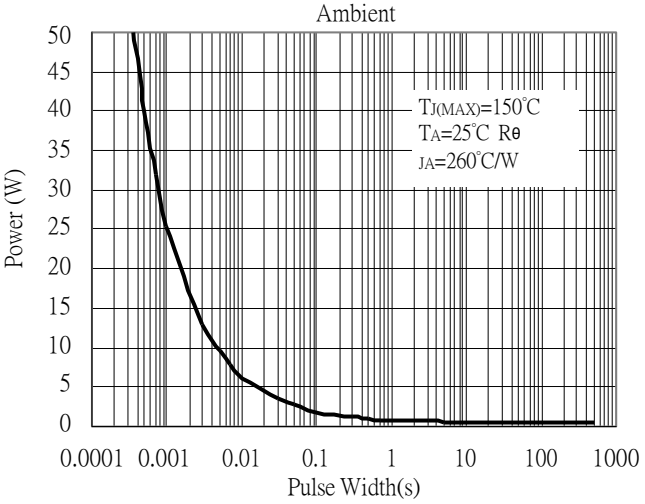


Typical Characteristics(Cont.)

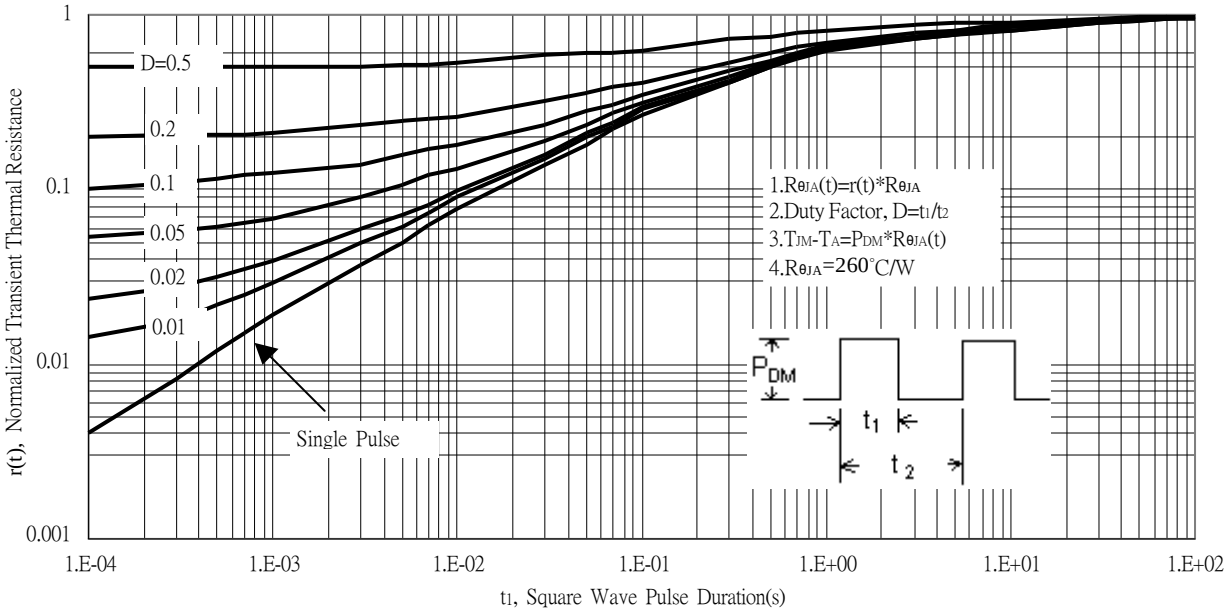
Typical Transfer Characteristics



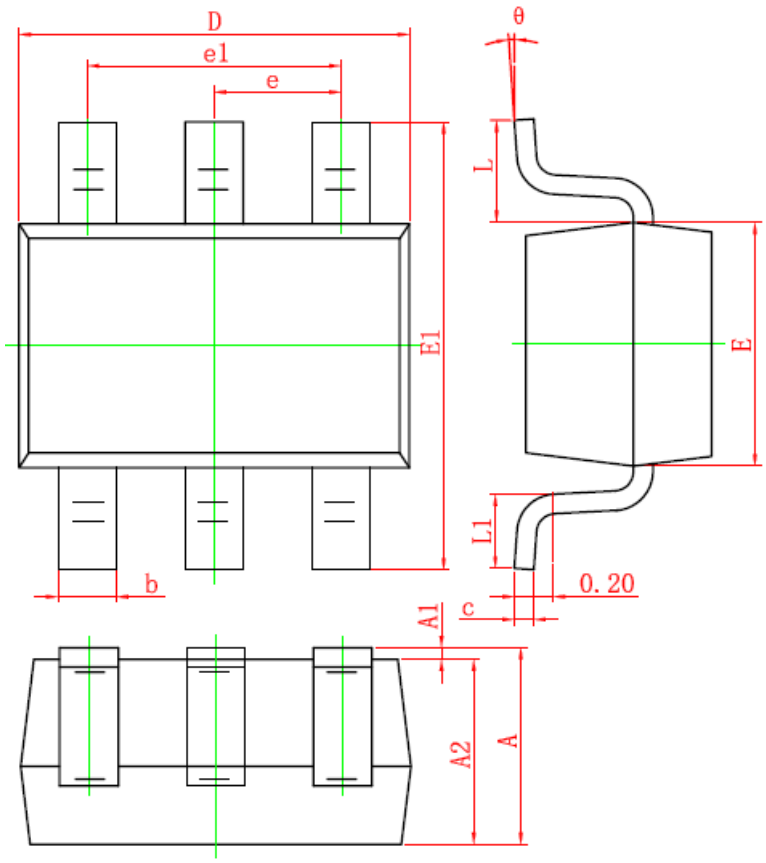
Single Pulse Maximum Power Dissipation, Junction to Ambient



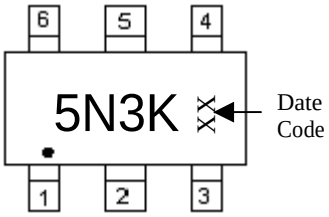
Transient Thermal Response Curves



SOT-363 Dimension



Marking:



6-Lead SOT-363 Plastic
Surface Mounted Package
Code: S6

Style:
Pin 1. Drain (D)
Pin 2. Drain (D)
Pin 3. Gate (G)
Pin 4. Source (S)
Pin 5. Drain (D)
Pin 6. Drain (D)

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	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					