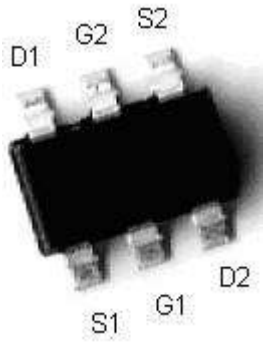
Dual P-CHANNEL MOSFET

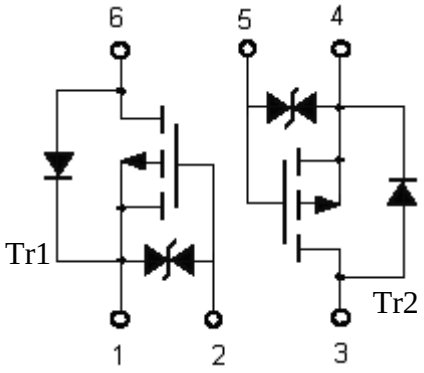
Features:

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

SOT-363



BV_{DSS}	-20V
I_D@V_{GS}=-4.5V, T_A=25°C	-500mA
R_{DSON}@V_{GS}=-4.5V, I_D=-430mA	0.64Ω (typ)
R_{DSON}@V_{GS}=2.5V, I_D=-300mA	1.1Ω (typ)
R_{DSON}@V_{GS}=-1.8V, I_D=-10mA	1.7Ω (typ)



Ordering Information

Device	Package	Shipping
KWP2004	SOT-363 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

The following characteristics apply to both Tr1 and Tr2

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current @ T_A=25°C, V_{GS}=-4.5V (Note 3)		I_D	-500	mA
Continuous Drain Current @ T_A=85°C, V_{GS}=-4.5V (Note 3)			-360	
Pulsed Drain Current (Notes 1, 2)		I_{DM}	-1.5	A
Maximum Power Dissipation (Note 3)	T_A=25℃	P_D	300	mW
	T_A=85℃		160	
Operating Junction and Storage Temperature		Tj, Tstg	-55~+150	°C

Note : 1. Pulse width limited by maximum junction temperature.
2. Pulse width≤ 300μs, duty cycle≤2%.
3.Surface mounted on 1 in² copper pad of FR-4 board, t≤5s.

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Case	Rth,jc	285	°C/W
Thermal Resistance, Junction-to-Ambient(PCB mounted) (Note)	Rth,ja	417	

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

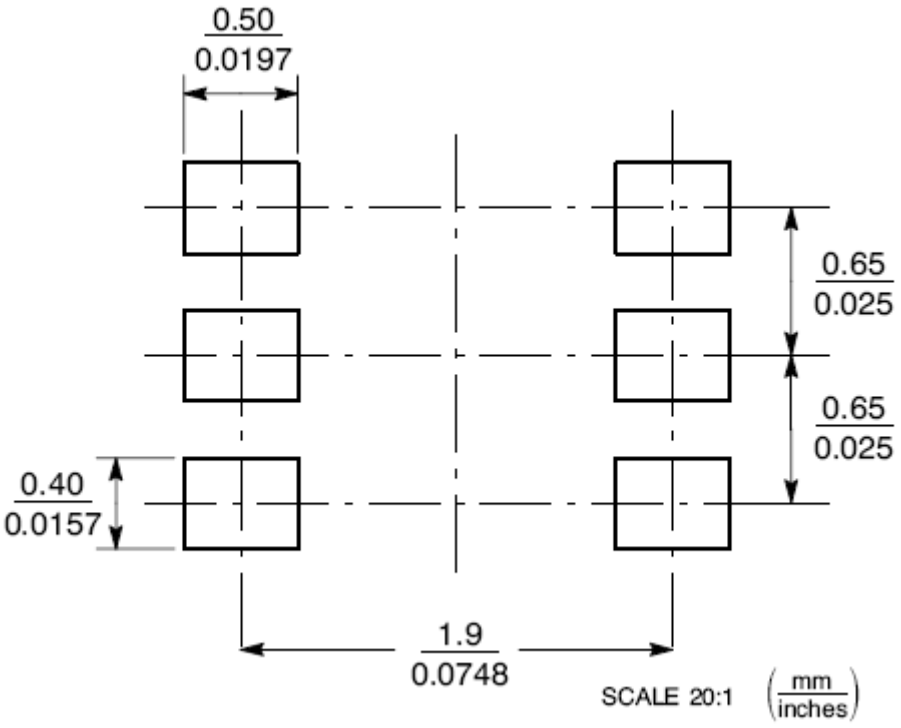
Electrical Characteristics (Tj=25°C, unless otherwise noted)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	-20	-	-	V	V_{GS}=0V, I_D=-250μA
$V_{GS(th)}$	-0.5	-0.8	-1.2		V_{DS}=V_{GS}, I_D=-250μA
I_{GSS}	-	-	±5	μA	V_{GS}=±8V, V_{DS}=0V
I_{DSS}	-	-	1		V_{DS}=20V, V_{GS}=0V
	-	-	10		V_{DS}=16V, V_{GS}=0V (Tj=70°C)
*$R_{DS(ON)}$	-	0.64	0.9	Ω	V_{GS}=-4.5V, I_D=-430mA
	-	1.1	1.4		V_{GS}=-2.5V, I_D=-300mA
	-	1.7	2.3		V_{GS}=-1.8V, I_D=-10mA
*G_{FS}	-	0.6	-	S	V_{DS}=-10V, I_D=-200mA
Dynamic					
Ciss	-	59	-	pF	V_{DS}=-10V, V_{GS}=0V, f=1MHz
Coss	-	21	-		
Crss	-	15	-		

$t_{d(ON)}$	-	5	-	ns	V_{DS}=-6V, I_D=-500mA, V_{GS}=-4.5V, R_G=50Ω
t_r	-	6	-		
$t_{d(OFF)}$	-	42	-		
t_f	-	14	-		
Qg	-	1.2	-	nC	V_{DS}=-5V, I_D=-250mA, V_{GS}=-4.5V
Qgs	-	0.38	-		
Qgd	-	0.23	-		
Source-Drain Diode					
*V_{SD}	-	-0.78	-1.2	V	V_{GS}=0V, I_S=-115mA

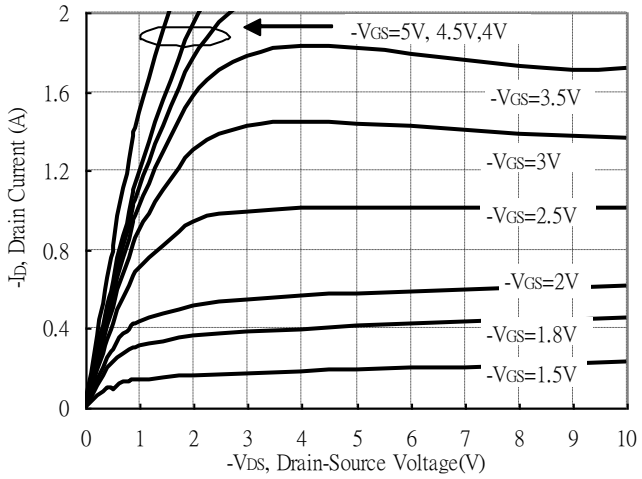
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Recommended Soldering Footprint

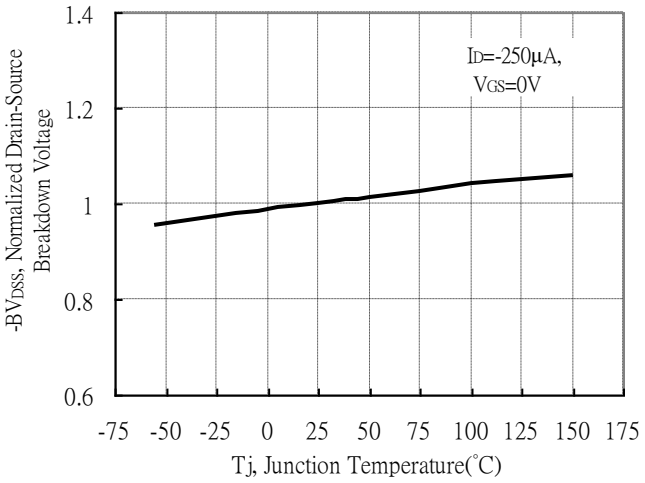


Typical Characteristics

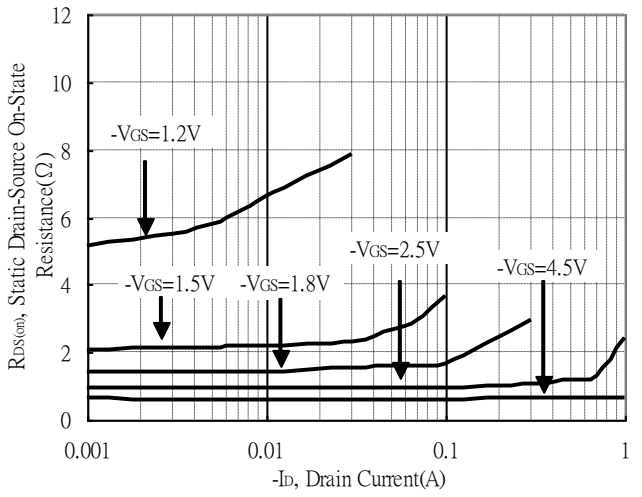
Typical Output Characteristics



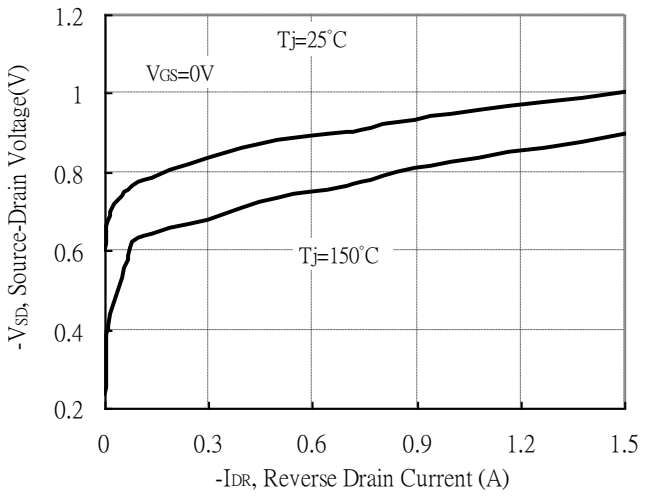
Brekdown Voltage vs Ambient Temperature



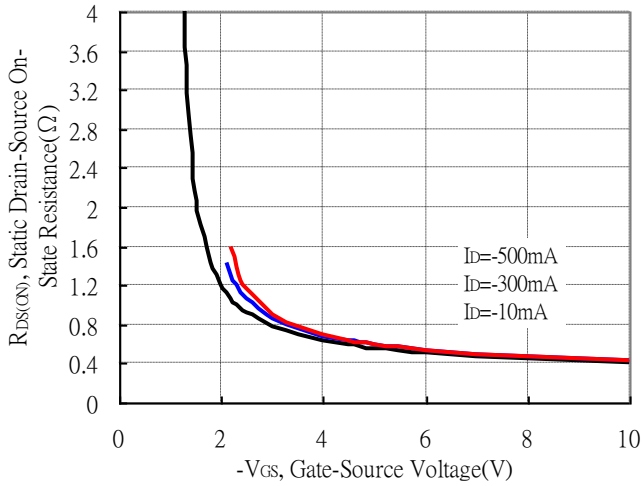
Static Drain-Source On-State resistance vs Drain Current



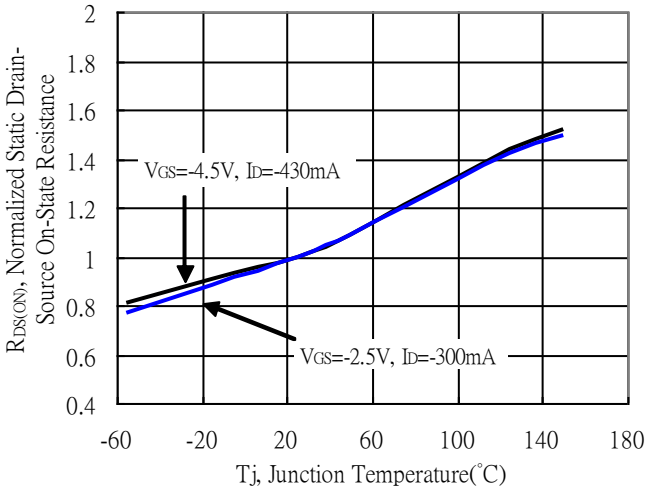
Reverse Drain Current vs Source-Drain Voltage



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

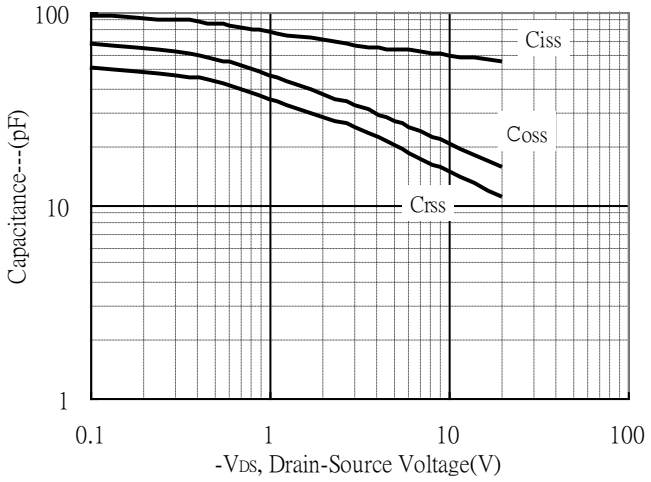


Drain-Source On-State Resistance vs Junction Tempearture

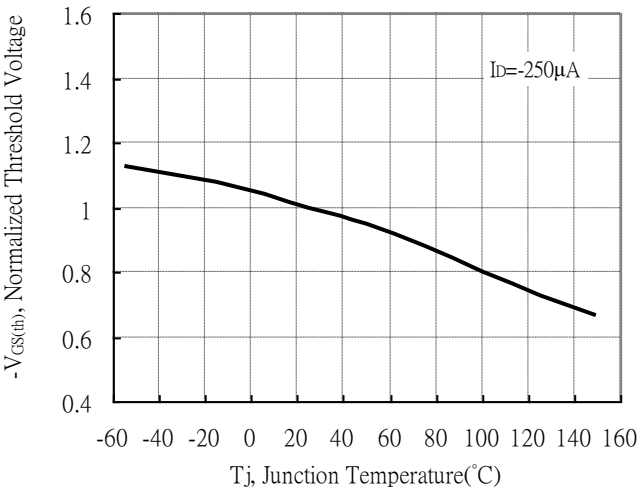


Typical Characteristics(Cont.)

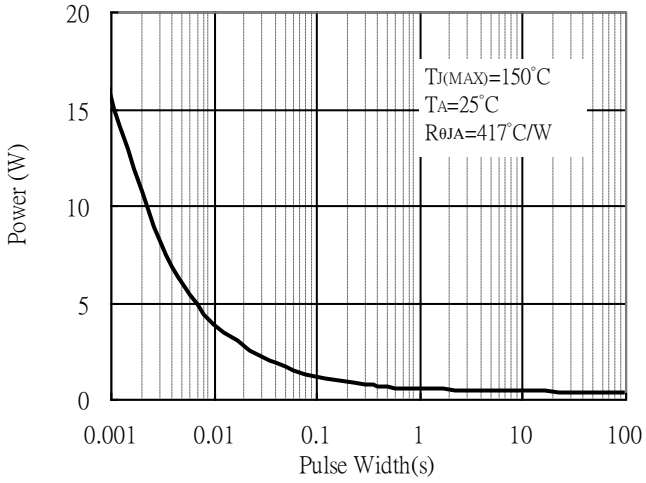
Capacitance vs Drain-to-Source Voltage



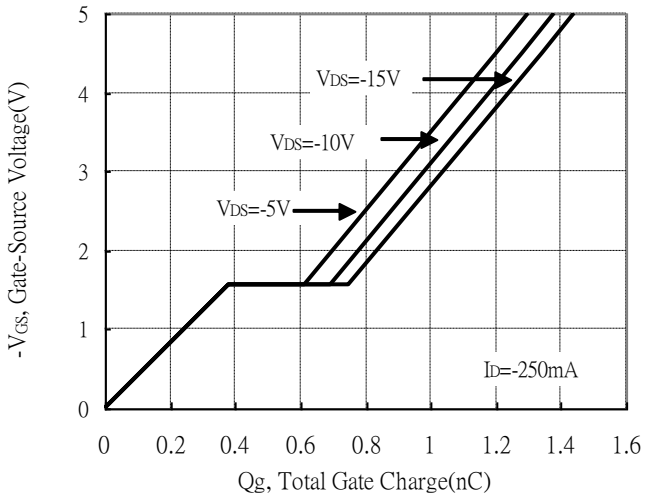
Threshold Voltage vs Junction Tempearture



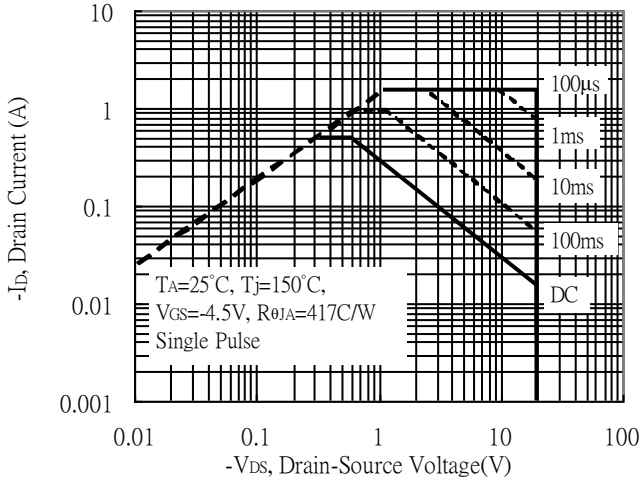
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)



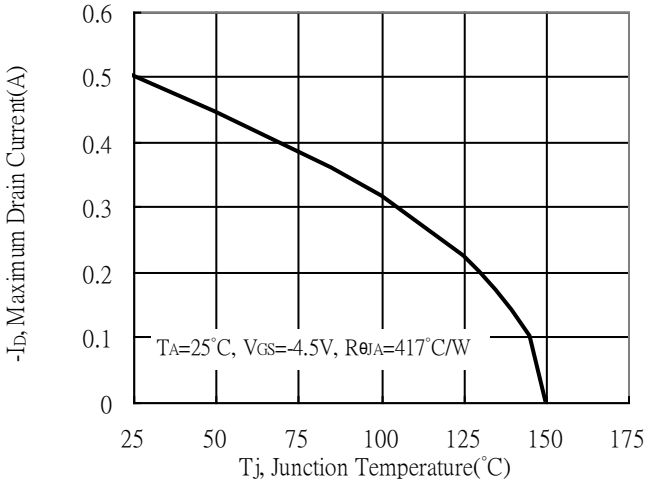
Gate Charge Characteristics



Maximum Safe Operating Area

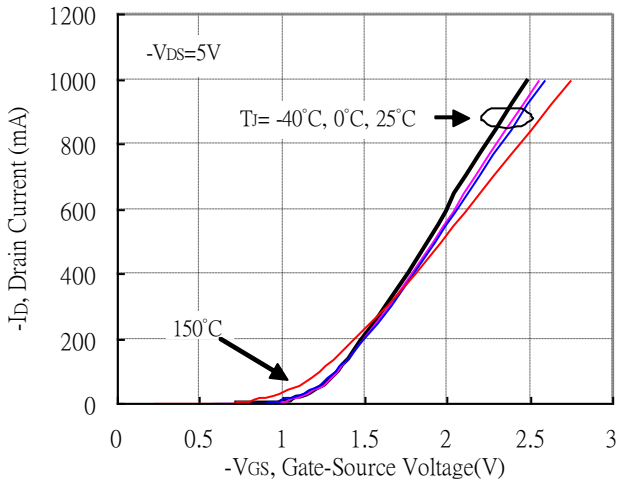


Maximum Drain Current vs JunctionTemperature

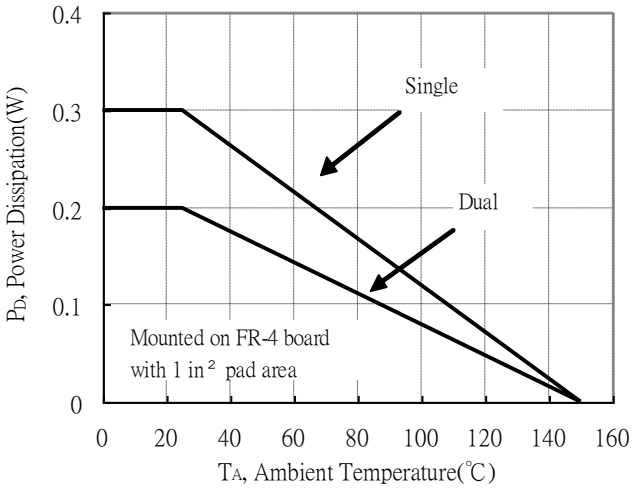


Typical Characteristics(Cont.)

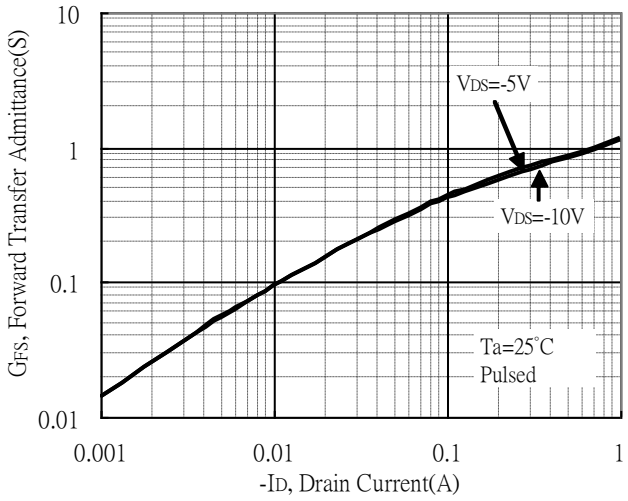
Typical Transfer Characteristics



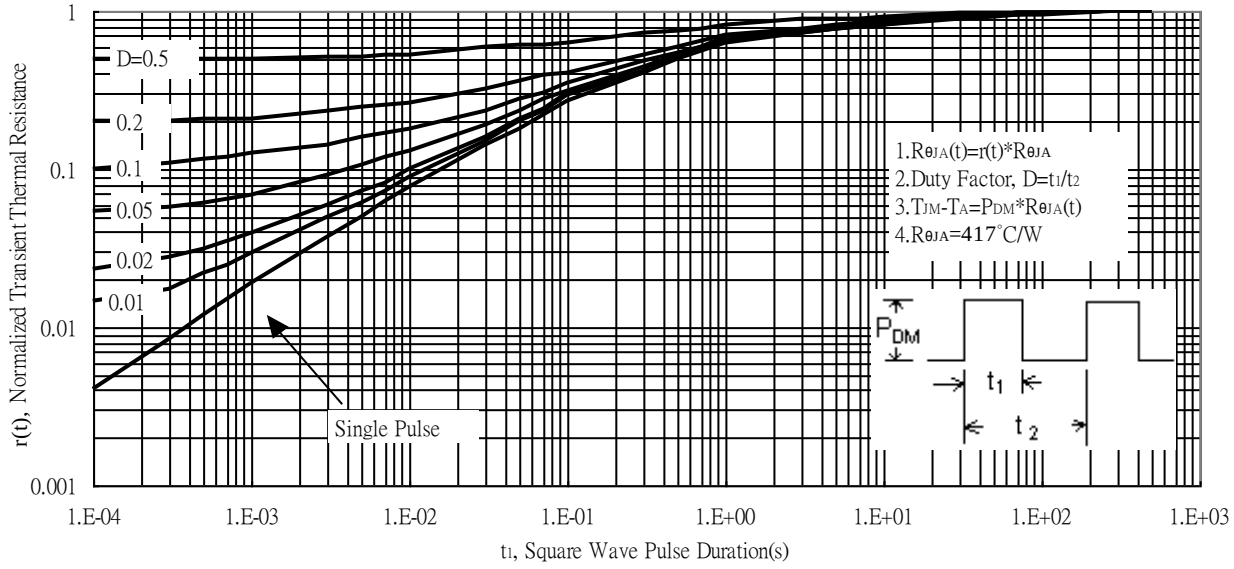
Power Derating Curve



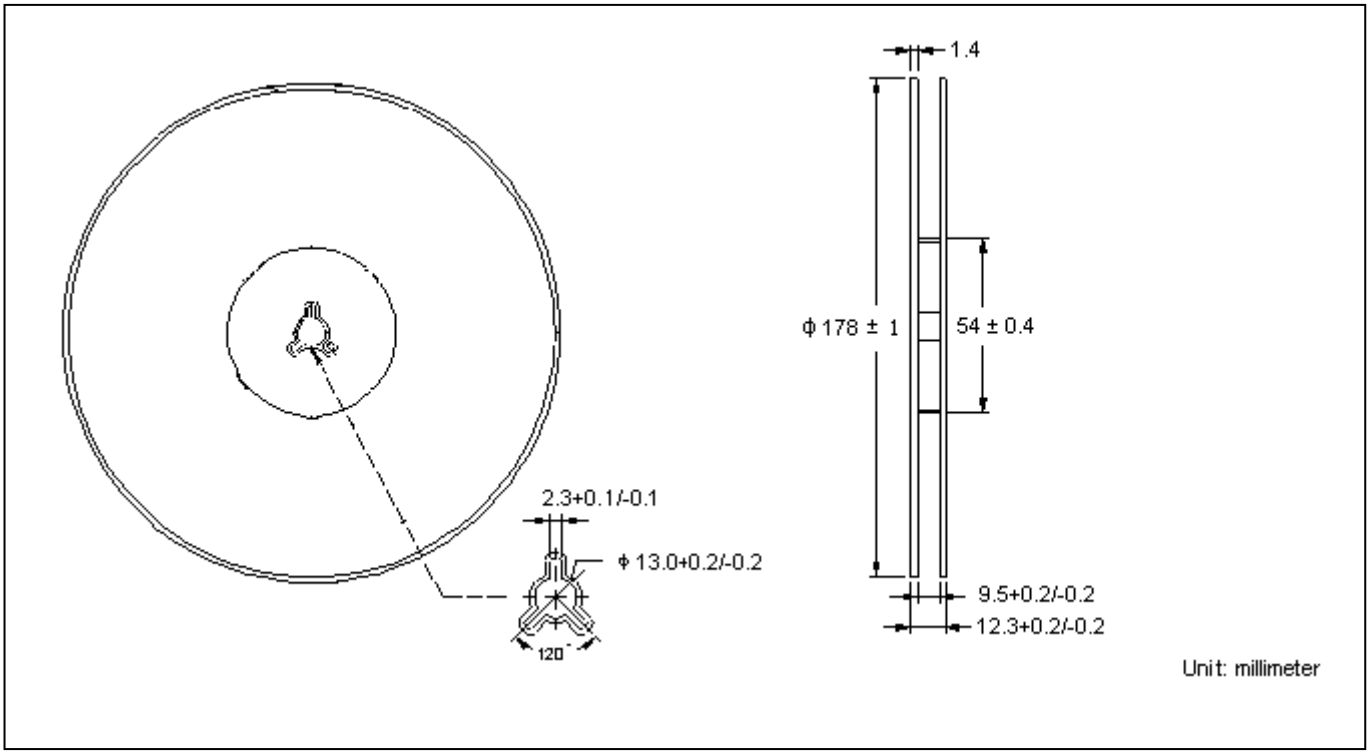
Forward Transfer Admittance vs Drain Current



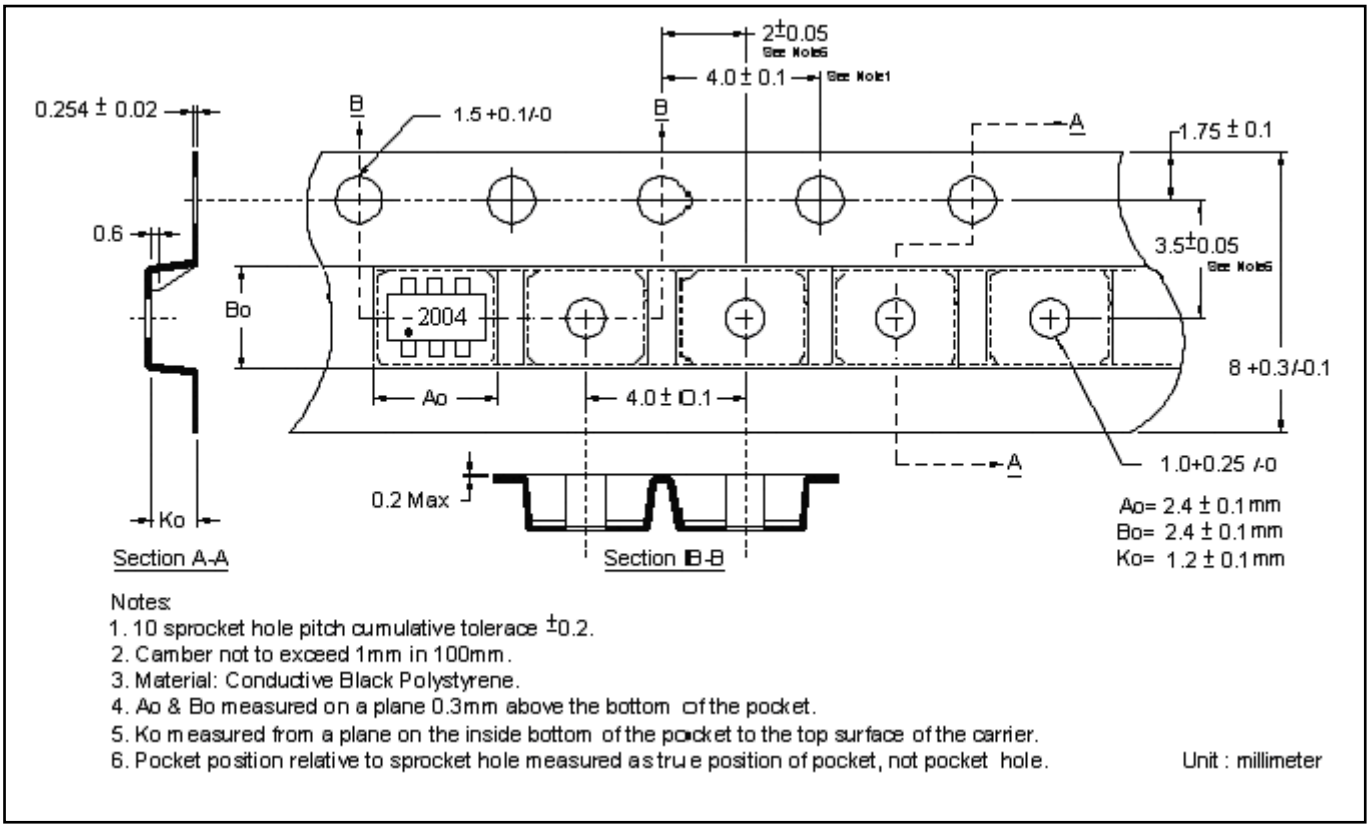
Transient Thermal Response Curves



Reel Dimension



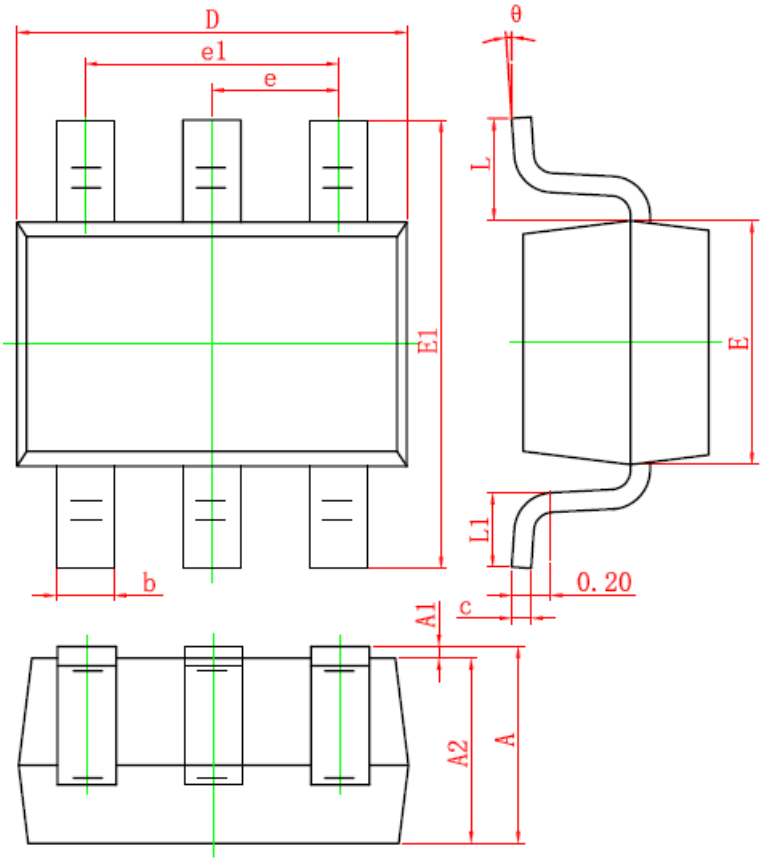
Carrier Tape Dimension



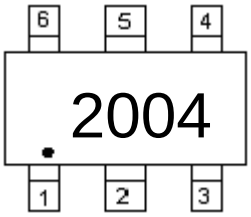
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

SOT-363 Dimension



Marking:



6-Lead SOT-363 Plastic
Surface Mounted Package

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