

P-Channel Enhancement Mode Power MOSFET

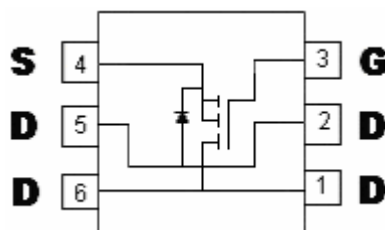
Description:

The KTT6405 is a P-channel enhancement-mode MOSFET, providing the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost effectiveness. The SOT-26 package is universally preferred for all commercial-industrial surface mount applications.

Features:

- Simple drive requirement
- Low on-resistance
- Small package outline
- Pb-free lead plating package

BV_{DS}	-30V
I_D	-6.5A
$R_{DS(on)(MAX)}@V_{GS}=-10V, I_D=-5A$	24m Ω (typ.)
$R_{DS(on)(MAX)}@V_{GS}=-4.5V, I_D=-4A$	34m Ω (typ.)



G : Gate S : Source D : Drain

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	$T_C=25\text{ }^{\circ}\text{C}$	I_D	-8.2	A
	$T_C=70\text{ }^{\circ}\text{C}$		-6.6	
	$T_A=25\text{ }^{\circ}\text{C}$ (Note 1)		-6.5	
	$T_A=70\text{ }^{\circ}\text{C}$ (Note 1)		-5.2	
Pulsed Drain Current (Note 2, 3)		I_{DM}	-30	
Total Power Dissipation	$T_C=25\text{ }^{\circ}\text{C}$	P_D	3.2	W
	$T_C=70\text{ }^{\circ}\text{C}$		2.1	
	$T_A=25\text{ }^{\circ}\text{C}$		2	
	$T_A=70\text{ }^{\circ}\text{C}$		1.25	
Operating Junction Temperature and Storage Temperature Range		T_j, T_{stg}	-55~+150	$^{\circ}\text{C}$

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	39	°C/W
Thermal Resistance, Junction-to-ambient, max (Note 1)	$R_{\theta JA}$	62.5	

Note : 1.Surface mounted on 1 in² copper pad of FR-4 board, $t \leq 5$ sec. 156°C/W when mounted on minimum copper pad.

2.Pulse width limited by maximum junction temperature.

3.Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

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

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-30	-	-	V	V _{GS} =0, I _D =-250μA
ΔBV _{DSS} /ΔT _j	-	-0.03	-	V/°C	Reference to 25°C, I _D =-250μA
V _{GS(th)}	-0.8	-1.2	-2.5	V	V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0
I _{DSS}	-	-	-100		V _{DS} =-24V, V _{GS} =0, T _j =25°C
	-	-	-10	μA	V _{DS} =-24V, V _{GS} =0, T _j =55°C
*R _{DS(ON)}	-	24	32	m∧	I _D =-5A, V _{GS} =-10V
	-	34	45		I _D =-4A, V _{GS} =-4.5V
*G _{FS}	-	16.6	-	S	V _{DS} =-5V, I _D =-5A
Dynamic					
C _{iss}	-	1316	-	pF	V _{DS} =-15V, V _{GS} =0, f=1MHz
C _{oss}	-	143	-		
C _{rss}	-	118	-		
t _{d(ON)}	-	14	-	ns	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V, R _G =6Ω
t _r	-	7	-		
t _{d(OFF)}	-	50	-		
t _f	-	23	-		
Q _g	-	16	-	nC	V _{DS} =-15V, I _D =-6.5A, V _{GS} =-10V
Q _{gs}	-	4.9	-		
Q _{gd}	-	5.2	-		
Source-Drain Diode					
*I _S	-	-	-3.5	A	
*I _{SM}	-	-	-14		
*V _{SD}	-	-0.75	-1	V	I _S =-1A, V _{GS} =0V
*T _{rr}	-	23	-	ns	I _S =-6.5A, V _{GS} =0V, dI/dt=100A/μs
Q _{rr}	-	14	-	nC	

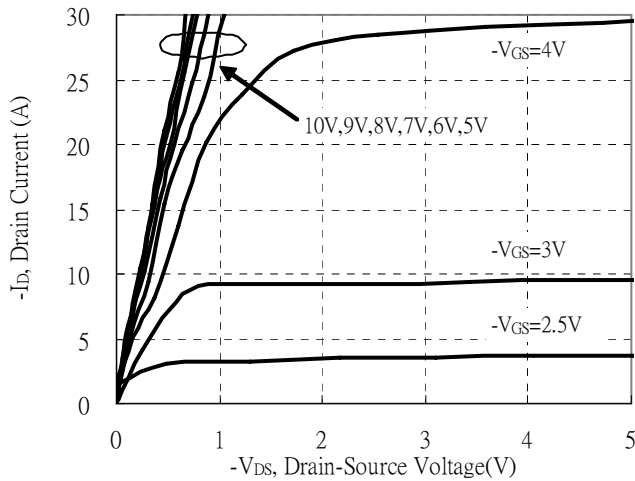
*Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Ordering Information

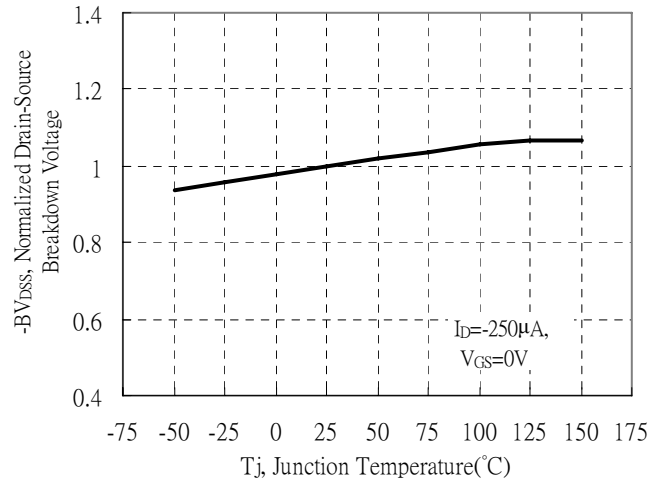
Device	Package	Shipping
KTT6405	SOT-26 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

Typical Characteristics

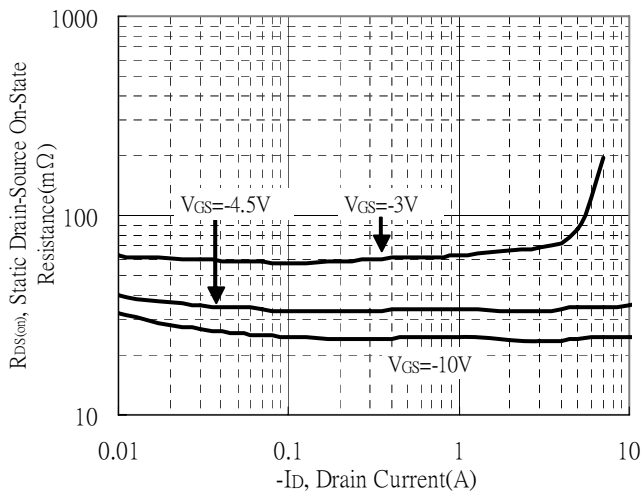
Typical Output Characteristics



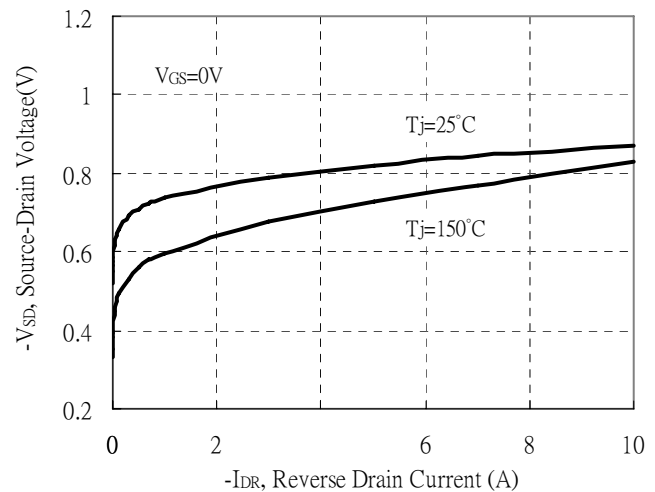
Breakdown Voltage vs Ambient Temperature



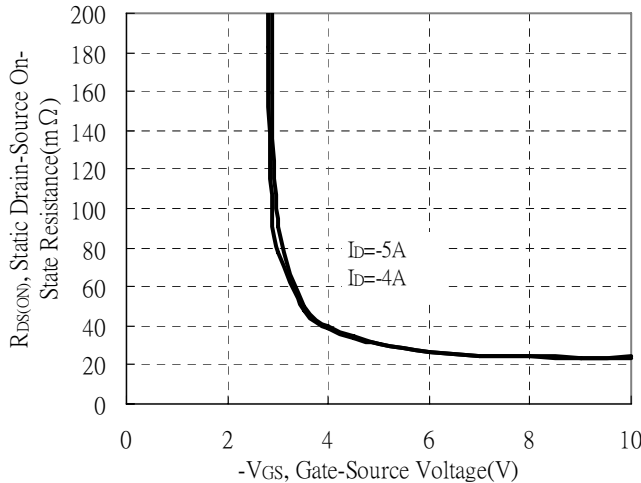
Static Drain-Source On-State resistance vs Drain Current



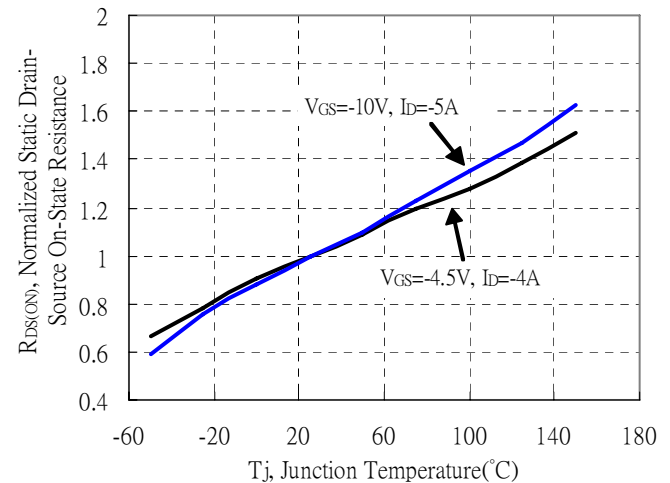
Reverse Drain Current vs Source-Drain Voltage



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

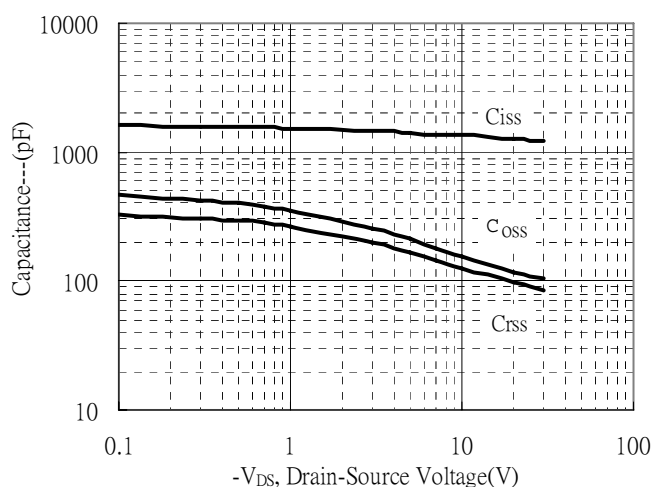


Drain-Source On-State Resistance vs Junction Temperature

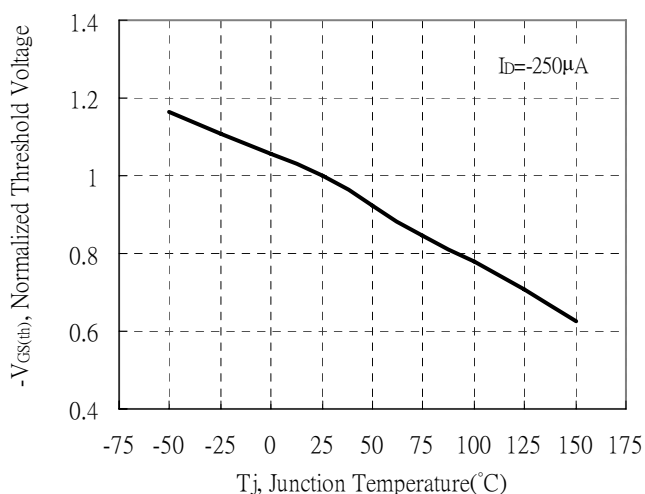


Typical Characteristics(Cont.)

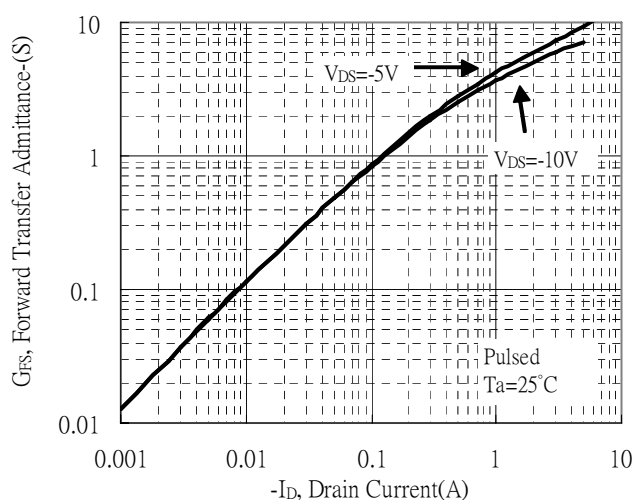
Capacitance vs Drain-to-Source Voltage



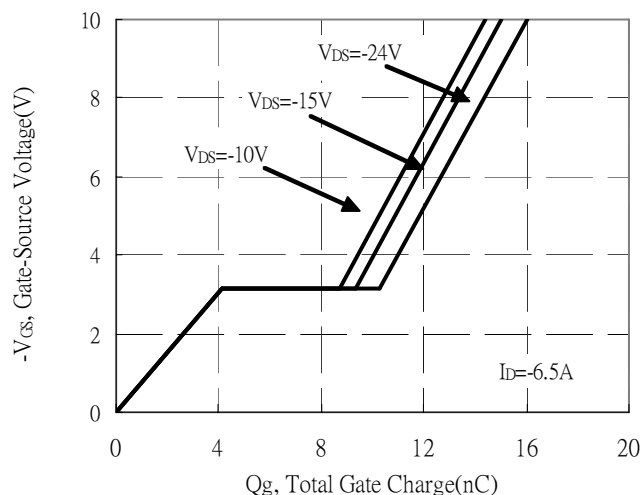
Threshold Voltage vs Junction Temperature



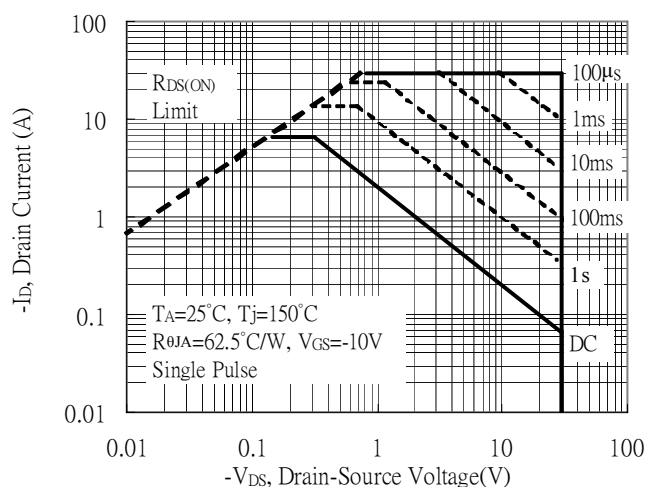
Forward Transfer Admittance vs Drain Current



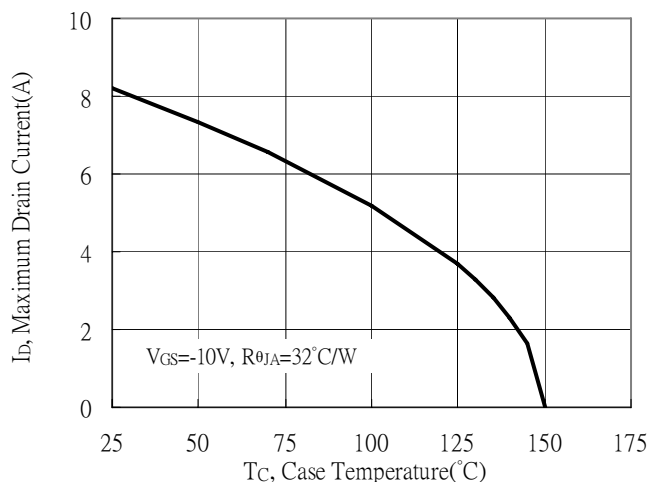
Gate Charge Characteristics



Maximum Safe Operating Area

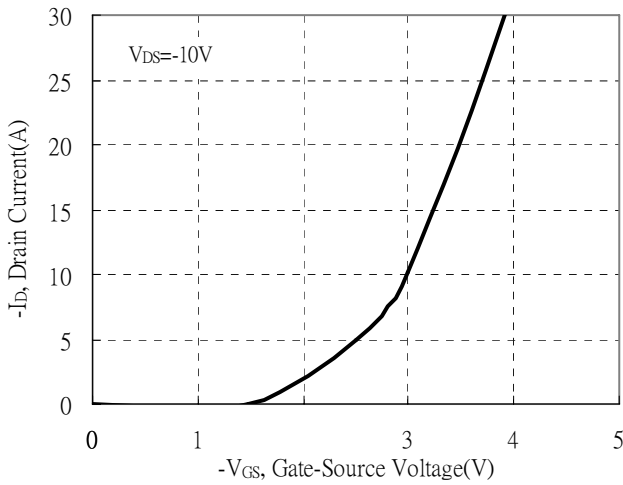


Maximum Drain Current vs Case Temperature

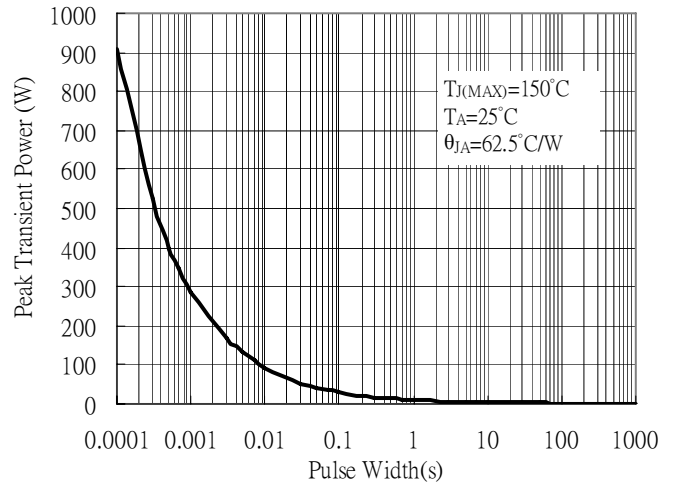


Typical Characteristics(Cont.)

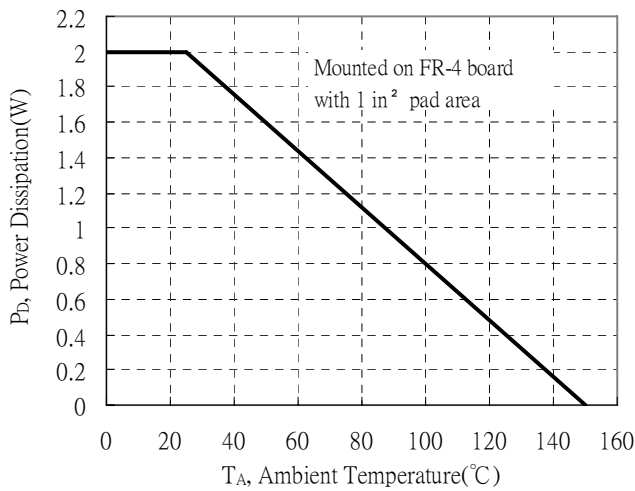
Typical Transfer Characteristics



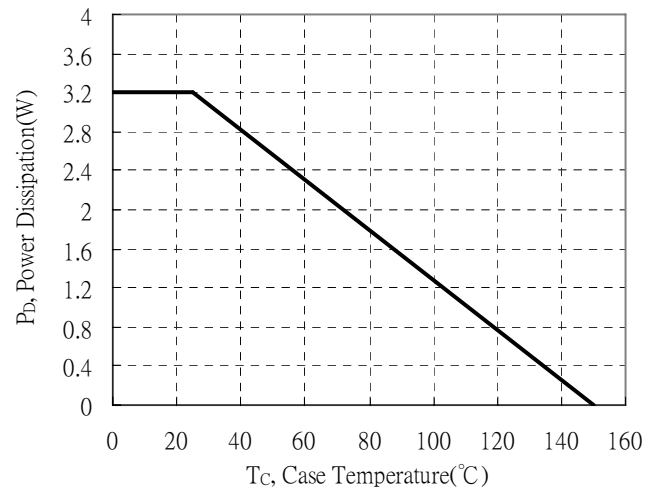
Single Pulse Maximum Power Dissipation



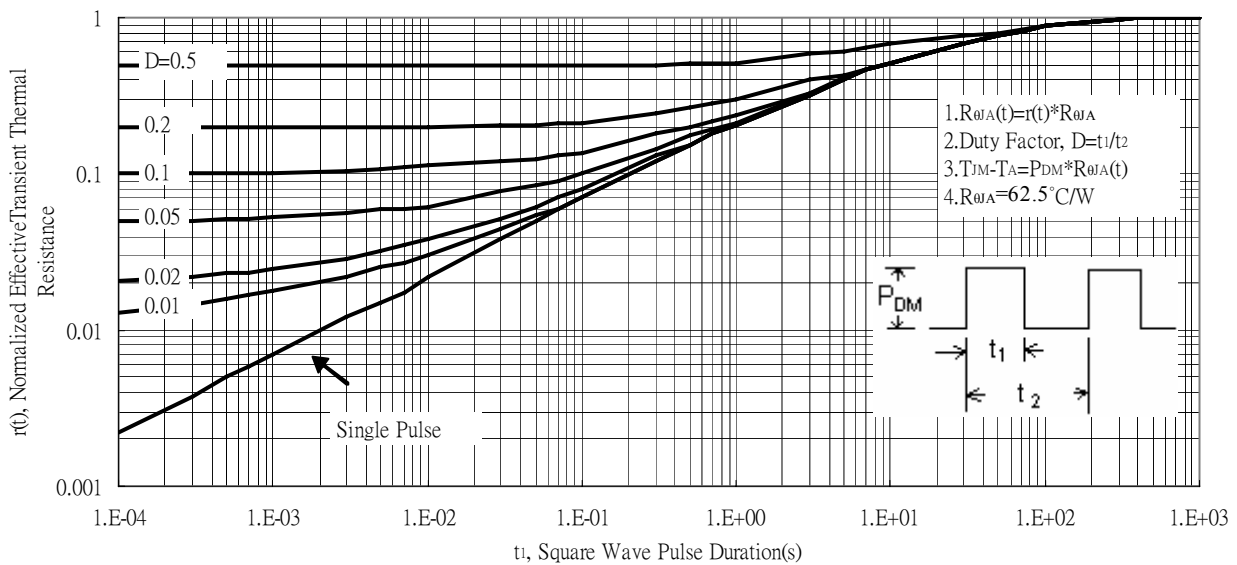
Power Derating Curve



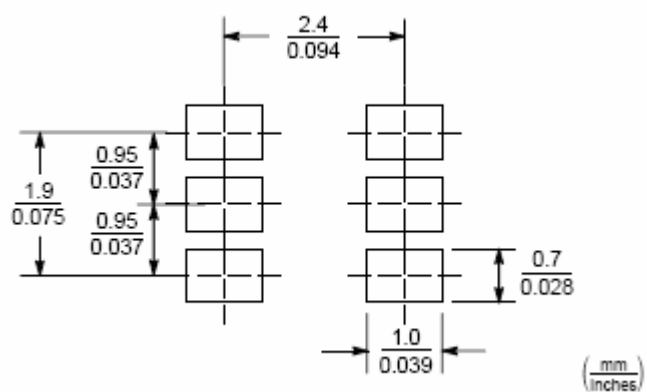
Power Derating Curve



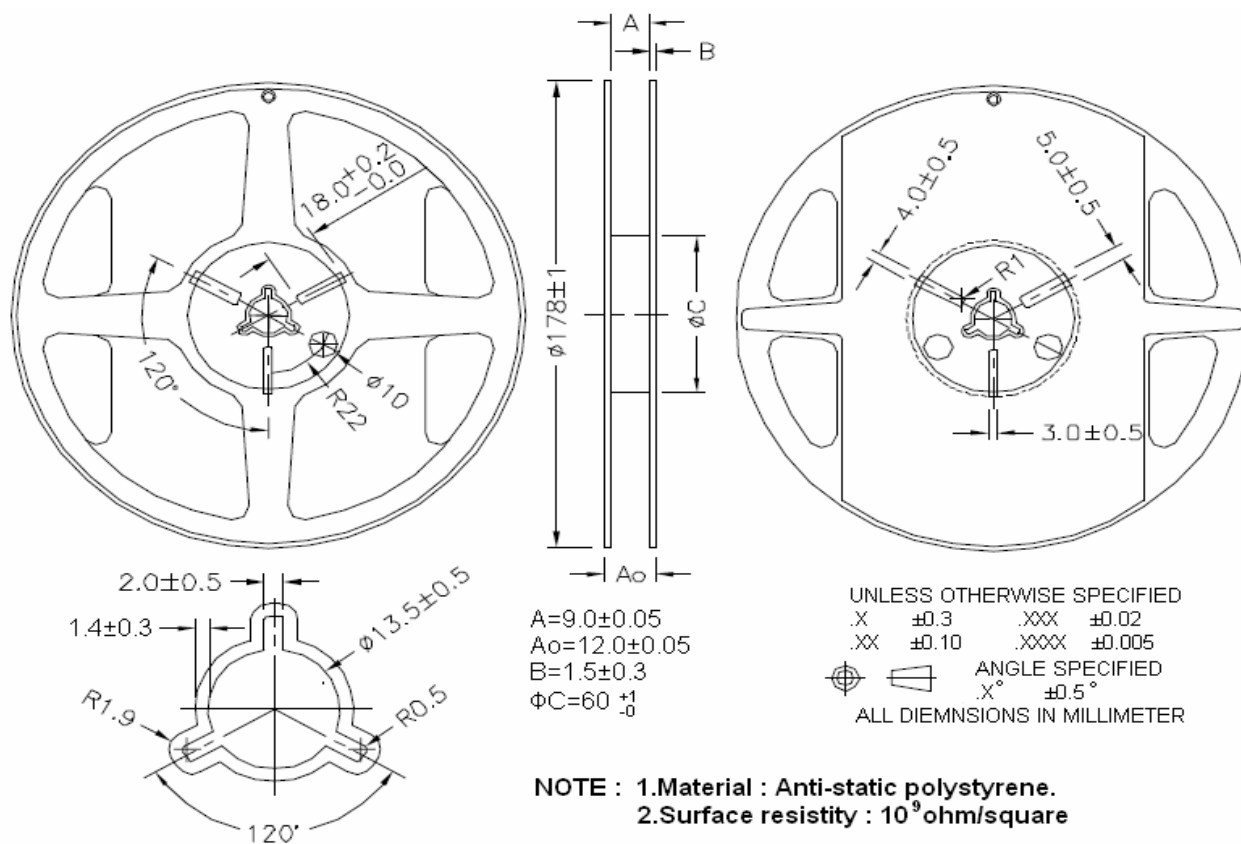
Transient Thermal Response Curves



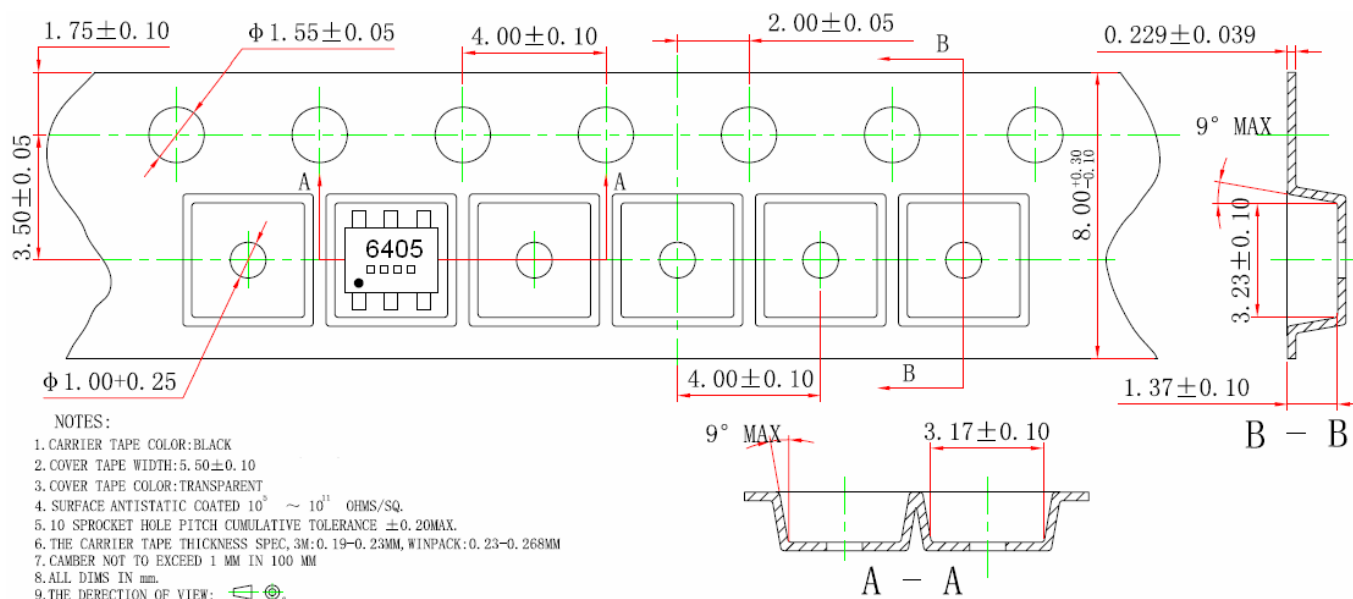
Recommended Soldering Footprint



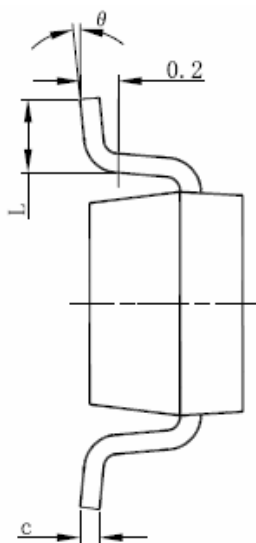
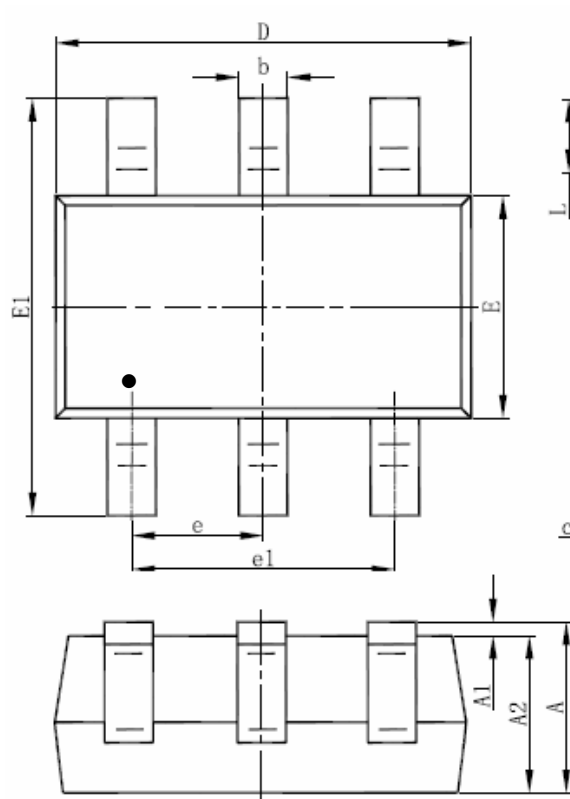
Reel Dimension



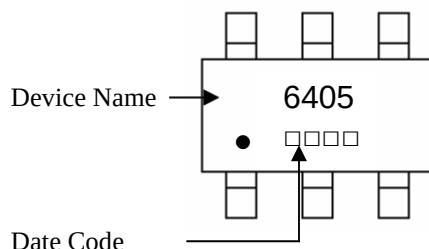
Carrier Tape Dimension



SOT-26 Dimension



Marking:



6-Lead SOT-26 Plastic
Surface Mounted Package

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	1.050	1.250	0.041	0.049	E	1.500	1.700	0.059	0.067
A1	0.000	0.100	0.000	0.004	E1	2.650	2.950	0.104	0.116
A2	1.050	1.150	0.041	0.045	e	0.950 (BSC)		0.037 (BSC)	
b	0.300	0.500	0.012	0.020	e1	1.800	2.000	0.071	0.079
c	0.100	0.200	0.004	0.008	L	0.300	0.600	0.012	0.024
D	2.820	3.020	0.111	0.119	θ	0°	8°	0°	8°