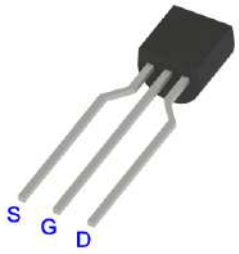
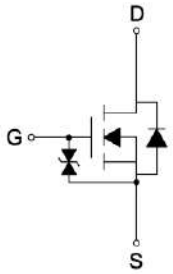
N-Channel Enhancement Mode Power MOSFET

Features:

- Low Gate Charge
- Fast Switching Characteristic
- Pb-free lead plating and halogen-free
- ESD protected gate, typical 3kV (HBM)

TO-92





BV_{DSS}	60	V
$R_{DS(ON)}$ typ. @ V_{GS}=10V, I_D=0.2A	1.1	Ω
$R_{DS(ON)}$ typ. @ V_{GS}=4.5V, I_D=0.2A	1.2	
I_D @ V_{GS}=10V, T_C=25°C	0.71	A
I_D @ V_{GS}=10V, T_A=25°C	0.44	

Ordering Information

Device	Package	Shipping
KWNK6	TO-92	2000pcs / Tape & Box

Absolute Maximum Ratings (T_A=25°C)

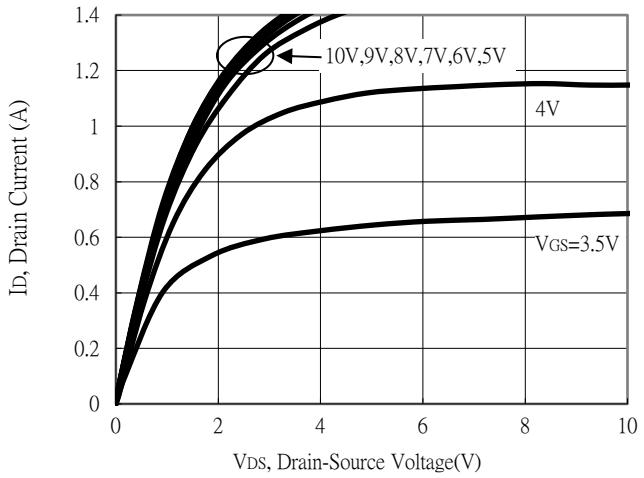
Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current @ V_{GS}=10V, T_C=25°C	*a	I_D	0.71	A
Continuous Drain Current @ V_{GS}=10V, T_C=100°C	*a		0.45	
Continuous Drain Current @ V_{GS}=10V, T_A=25°C	*b		0.44	
Continuous Drain Current @ V_{GS}=10V, T_A=70°C	*b		0.35	
Pulsed Drain Current	*c	I_{DM}	1.5	
Continuous Body Diode Forward Current @ T_C=25°C	*a	I_S	0.7	
Pulsed Body Diode Forward Current @ T_C=25°C	*a	I_{SM}	1.5	
Total Power Dissipation	T_C=25°C *a	P_D	2	W
	T_C=100°C *a		0.8	
	T_A=25°C *b		0.8	
	T_A=70°C *b		0.5	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55~+150	°C
Steady State Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	61	°C/W
Steady State Thermal Resistance, Junction-to-Ambient	*b	$R_{\theta JA}$	156	

Electrical Characteristics (T_A=25°C, unless otherwise specified)

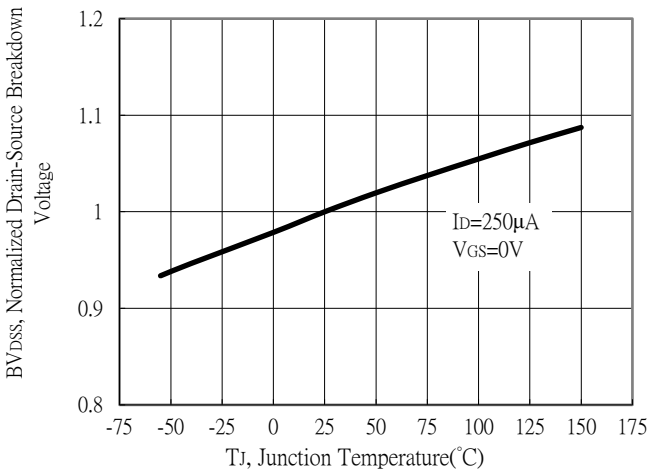
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	60	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	1	-	2.5		V_{DS}=V_{GS}, I_D=250μA
G_{FS}	-	0.3	-	S	V_{DS}=10V, I_D=0.2A
I_{GSS}	-	-	±10	μA	V_{GS}=±16V, V_{DS}=0V
I_{DSS}	-	-	1		V_{DS}=48V, V_{GS}=0V
$R_{DS(ON)}$	-	1.1	2	Ω	V_{GS}=10V, I_D=0.2A
	-	1.2	3		V_{GS}=4.5V, I_D=0.2A
Dynamic					
C_{iss}	-	25	-	pF	V_{DS}=30V, V_{GS}=0V, f=1MHz
C_{oss}	-	9	-		
C_{rss}	-	7	-		
R_g	-	3.3	-	Ω	f=1MHz
Q_g *d,e	-	0.75	-	nC	V_{DS}=30V, I_D=0.2A, V_{GS}=4.5V
Q_g *d,e	-	1.5	-		V_{DS}=30V, I_D=0.2A, V_{GS}=10V
Q_{gs} *d,e	-	0.45	-		
Q_{gd} *d,e	-	0.15	-		
$t_{d(ON)}$ *d,e	-	4	-	ns	V_{DS}=30V, I_D=0.2A, V_{GS}=10V, R_{GS}=1Ω
tr *d,e	-	15	-		
$t_{d(OFF)}$ *d,e	-	10	-		
t_f *d,e	-	16	-		
Source-Drain Diode					
V_{SD} *d	-	0.8	1.2	V	I_S=0.2A, V_{GS}=0V
t_{rr}	-	9	-	ns	I_F=0.2A, di/dt=100A/μs
Q_{rr}	-	3	-	nC	

Typical Characteristics

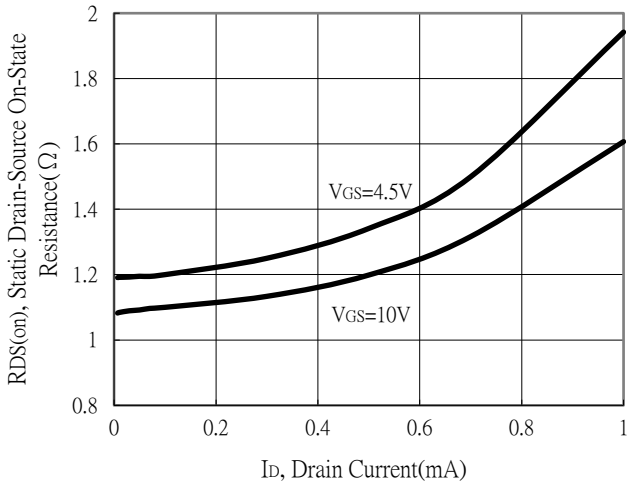
Typical Output Characteristics



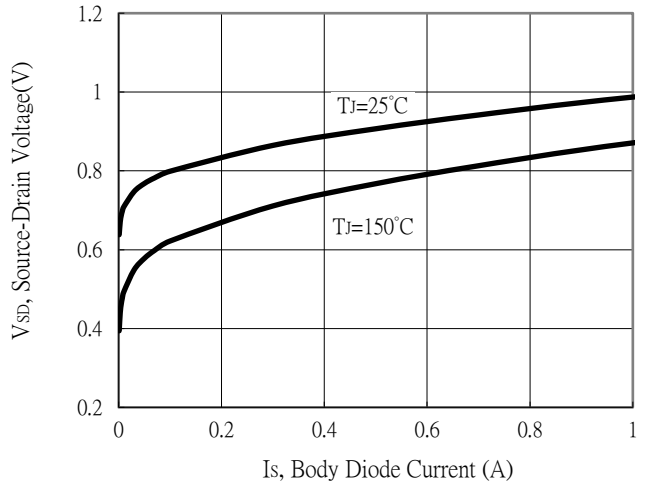
Brekdown Voltage vs Ambient Temperature



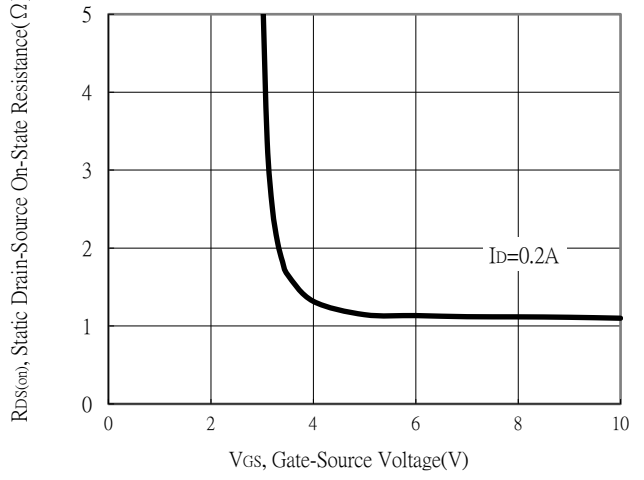
Static Drain-Source On-State resistance vs Drain Current



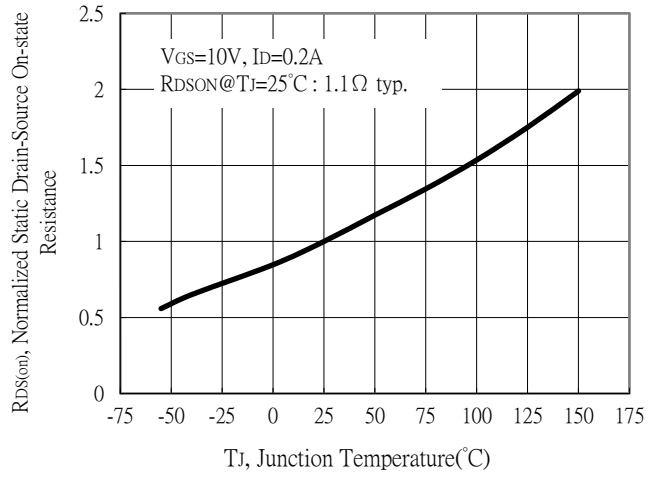
Body Diode Current vs Source-Drain Voltage



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

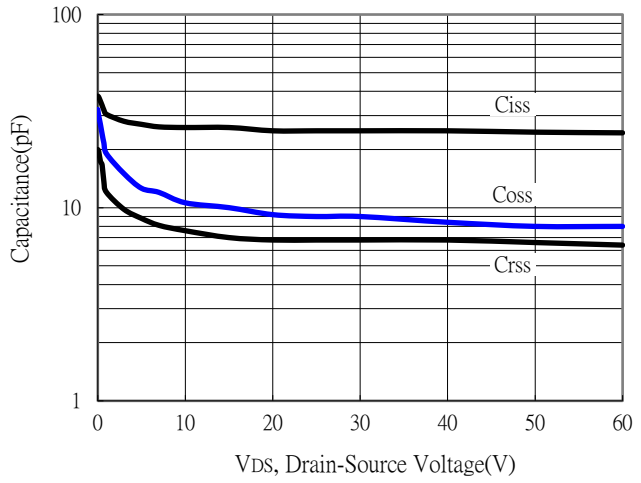


Drain-Source On-State Resistance vs Junction Temperature

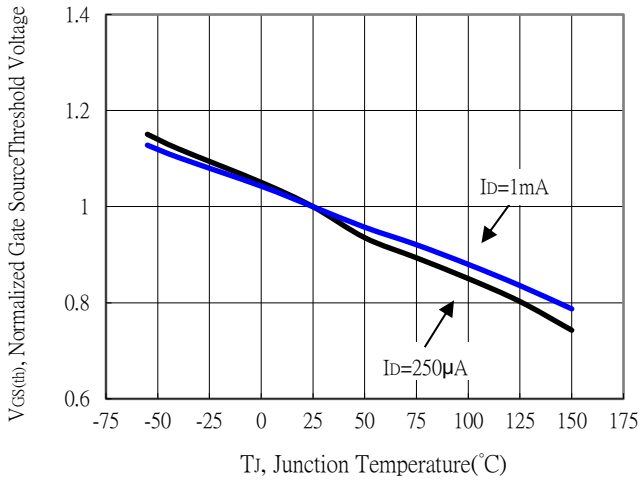


Typical Characteristics

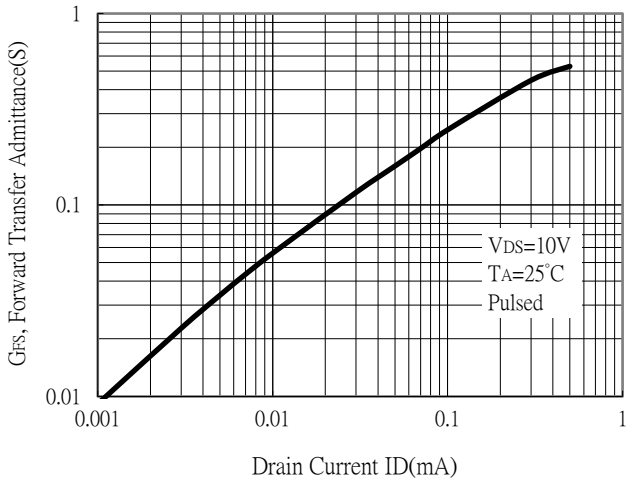
Capacitance vs Drain-to-Source Voltage



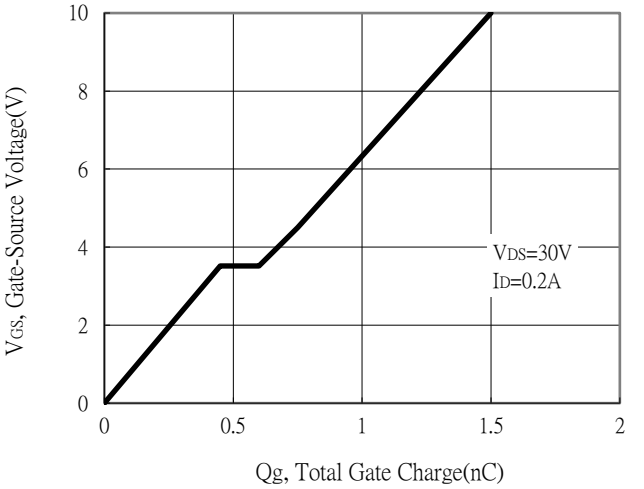
Threshold Voltage vs Junction Temperature



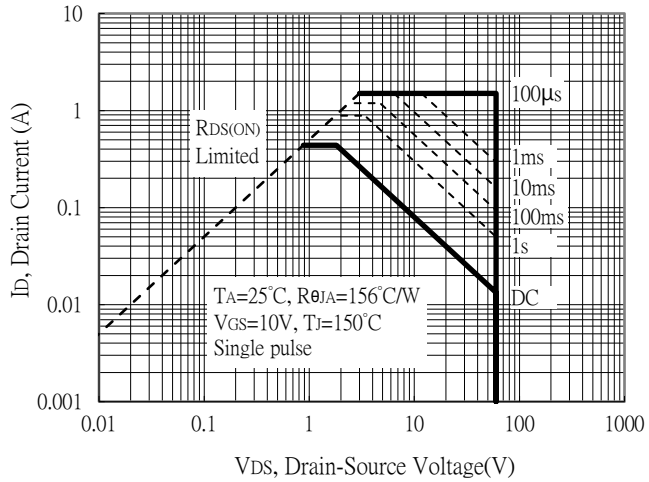
Forward Transfer Admittance vs Drain Current



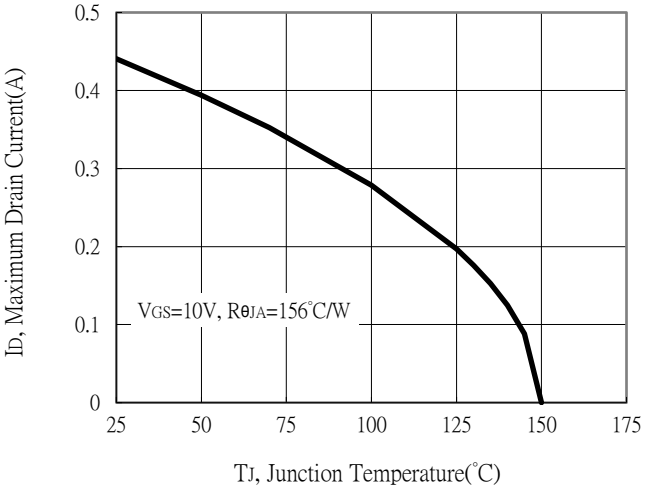
Gate Charge Characteristics



Maximum Safe Operating Area

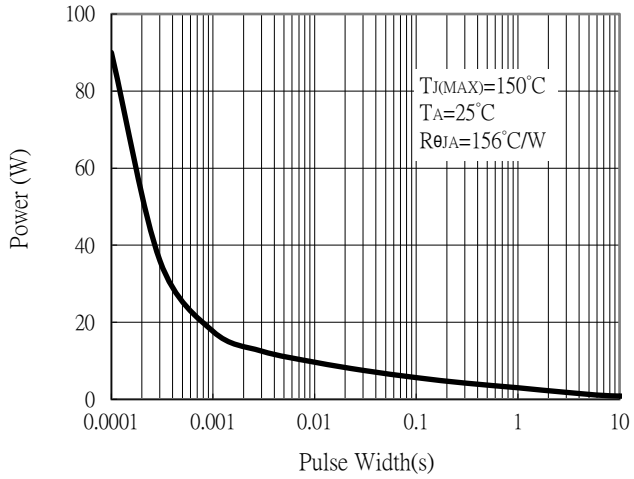


Maximum Drain Current vs Junction Temperature

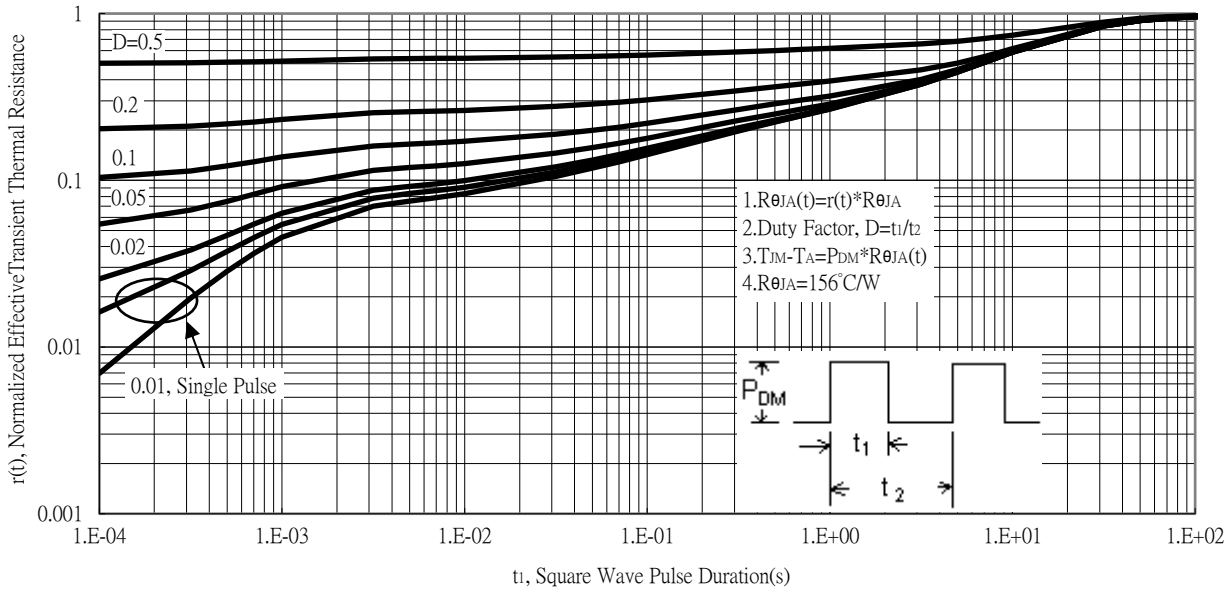


Typical Characteristics

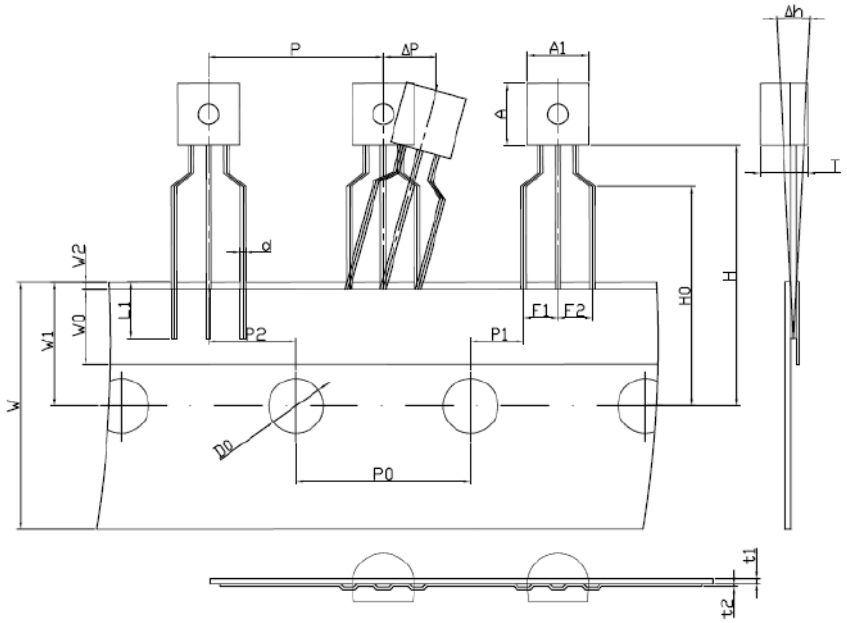
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves

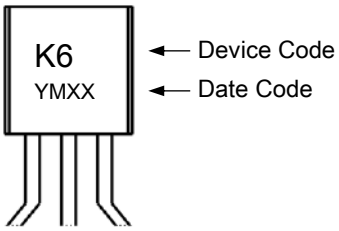


TO-92 Taping Outline Dimension



3-Lead TO-92 Plastic Package

Marking



YMXX: Date Code Marking

Y: Year Code, the last digit of Christian year

M: Month Code

A: Jan	B: Feb	C: Mar	D: Apr	E: May	F: Jun
G: Jul	H: Aug	J: Sep	K: Oct	L: Nov	M: Dec

XX: Production Serial Number, 01~99

DIM	Item	Millimeters	
		Min.	Max.
A1	Body width	4.3	4.7
A	Body height	4.3	4.7
T	Body thickness	3.3	3.7
d	Lead wire diameter	0.38	0.55
P	Pitch of component	12.4	13
P0	Feed hole pitch	12.5	12.9
P2	Hole center to component center	6.05	6.65
F1,F2	Lead to lead distance	2.2	2.8
△h	Component alignment, F-R	-1	1
W	Type width	17.5	19
W0	Hole down tape width	5.5	6.5
W1	Hole position	8.5	9.5
W2	Hole down tape position	-	1
H	Height of component from tape center	18	21
H0	Lead wire clinch height	15.5	16.5
L1	Lead wire(tape portion)	2.5	-
D0	Feed hole diameter	3.8	4.2
t1	Taped Lead Thickness	0.35	0.45
t2	Carrier Tape Thickness	0.15	0.25
P1	Position of hole	3.55	4.15
△P	Component alignment	-0.1	0.1