

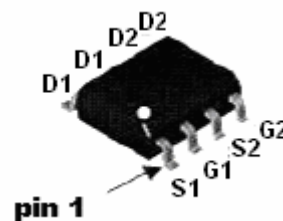
N- AND P-Channel Logic Level Enhancement Mode MOSFET

Features:

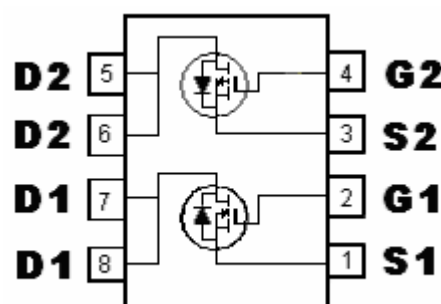
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Pb-free lead plating and halogen-free package

Description:

The KWBA5C10AQ8 consists of a N-channel and a P-channel enhancement-mode MOSFET in a single SOP-8 package, providing the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The SOP-8 package is universally preferred for all commercial-industrial surface mount applications.



SOP-8



G : Gate S : Source D : Drain

	N-CH	P-CH
BV _{DSS}	100V	-100V
I _D	2.4A	-2.2A
R _{DS(on)(MAX.)}	150mΩ	220mΩ

Ordering Information

Device	Package	Shipping
KWBA5C10AQ8	SOP-8 (Pb-free lead plating & halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (Tc=25°C, unless otherwise noted)

Parameter		Symbol	Limits		Unit
			N-channel	P-channel	
Drain-Source Breakdown Voltage		BV _{DSS}	100	-100	V
Gate-Source Voltage		V _{GS}	±20	±20	
Continuous Drain Current (Note 2)	T _A =25 °C, V _{GS} =10V (-10V)	I _D	2.4	-2.2	A
	T _A =100 °C, V _{GS} =10V (-10V)		1.5	-1.4	
Pulsed Drain Current (Note 1)		I _{DM}	12	-10	
Power Dissipation for Dual Operation		P _D	2		W
Power Dissipation for Single Operation			1.6 (Note 2)		
			0.9 (Note 3)		
Operating Junction and Storage Temperature Range		T _j ; T _{stg}	-55~+150		°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{th,j-c}	40	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{th,j-a}	78 (Note 2)	°C/W
		135 (Note 3)	°C/W

- Note : 1.Pulse width limited by maximum junction temperature.
 2.Surface mounted on 1 in² copper pad of FR-4 board, pulse width≤10s.
 3.Surface mounted on minimum copper pad, pulse width≤10s.

N-Channel Electrical Characteristics (Tc=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0, I _D =250μA
V _{GS(th)}	1.0	1.8	3.0	V	V _{DS} =V _{GS} , I _D =250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0
I _{DSS}	-	-	1	μA	V _{DS} =80V, V _{GS} =0
	-	-	25	μA	V _{DS} =70V, V _{GS} =0, T _j =125°C
*R _{DS(ON)}	-	121	150	mΩ	I _D =2.4A, V _{GS} =10V
	-	125	160		I _D =2A, V _{GS} =5V
*G _{FS}	-	8	-	S	V _{DS} =5V, I _D =2.4A
Dynamic					
C _{iss}	-	1237	-	pF	V _{DS} =20V, V _{GS} =0, f=1MHz
C _{oss}	-	38	-		
C _{rss}	-	27	-		
*t _{d(ON)}	-	13	-	ns	V _{DS} =50V, I _D =1A, V _{GS} =10V, R _G =6Ω
*t _r	-	9	-		
*t _{d(OFF)}	-	36	-		
*t _f	-	9	-		
*Q _g	-	18	-	nC	V _{DS} =80V, I _D =2.4A, V _{GS} =10V
*Q _{gs}	-	4.2	-		
*Q _{gd}	-	3.6	-		

Body Diode					
*V _{SD}	-	-	1.3	V	V _{GS} =0V, I _S =2.4A
*I _S	-	-	2.4	A	
*I _{SM}	-	-	12		

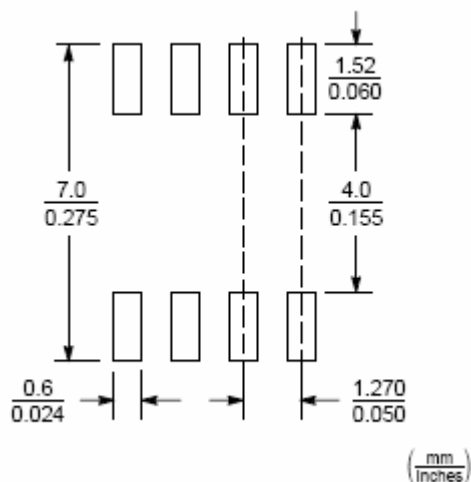
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

P-Channel Electrical Characteristics (T_c=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-100	-	-	V	V _{GS} =0, I _D =-250μA
V _{GS(th)}	-1.0	-1.8	-3.0		V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0
I _{DSS}	-	-	-1	μA	V _{DS} =-80V, V _{GS} =0
	-	-	-25		V _{DS} =-70V, V _{GS} =0, T _j =125°C
*R _{DS(ON)}	-	167	220	mΩ	I _D =-1.5A, V _{GS} =-10V
	-	180	230		I _D =-1A, V _{GS} =-5V
*G _{FS}	-	5	-	S	V _{DS} =-5V, I _D =-1.5A
Dynamic					
C _{iss}	-	1406	-	pF	V _{DS} =-20V, V _{GS} =0, f=1MHz
C _{oss}	-	56	-		
C _{rss}	-	33	-		
*t _{d(ON)}	-	14	-	ns	V _{DS} =-50V, I _D =-1A, V _{GS} =-10V, R _G =6Ω
*t _r	-	10	-		
*t _{d(OFF)}	-	37	-		
*t _f	-	10	-		
*Q _g	-	20	-	nC	V _{DS} =-80V, I _D =-2.2A, V _{GS} =-10V
*Q _{gs}	-	4.4	-		
*Q _{gd}	-	4.3	-		
Body Diode					
*V _{SD}	-	-	-1.3	V	V _{GS} =0V, I _S =-2.2A
*I _S	-	-	-2.2	A	
*I _{SM}	-	-	-10		

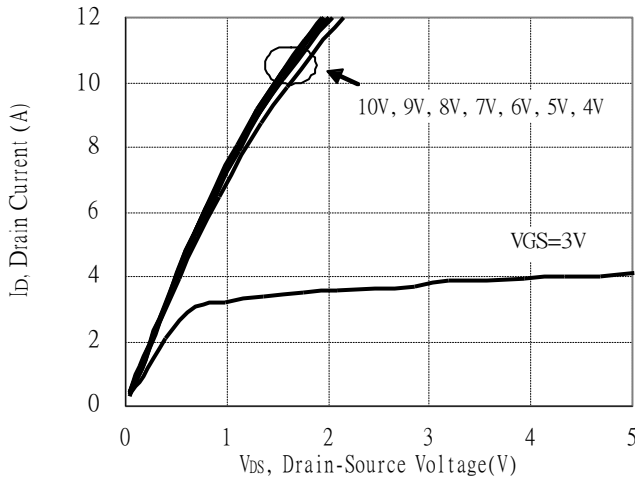
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Recommended Soldering Footprint

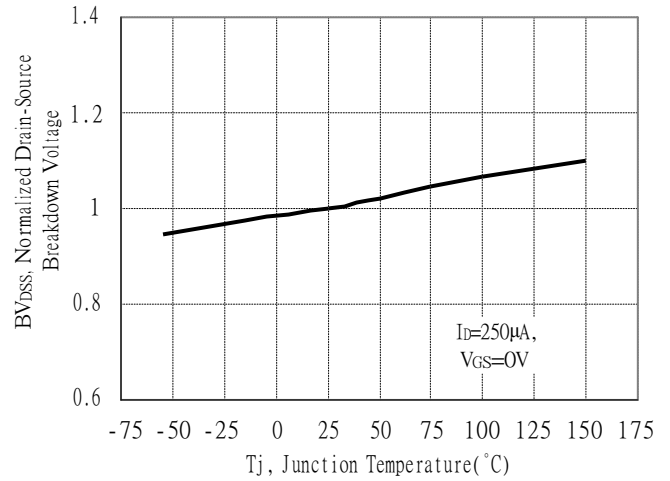


Typical Characteristics : Q1(N-channel)

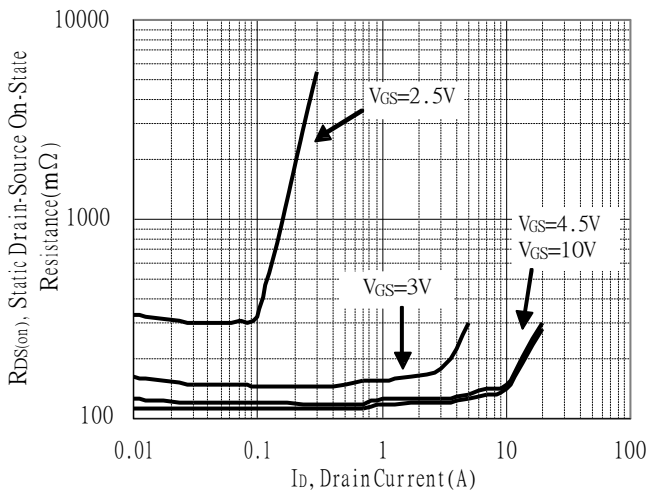
Typical Output Characteristics



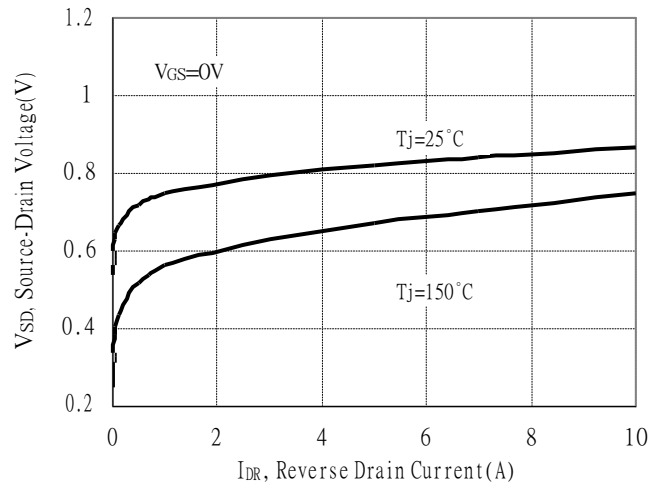
Breakdown Voltage vs Ambient Temperature



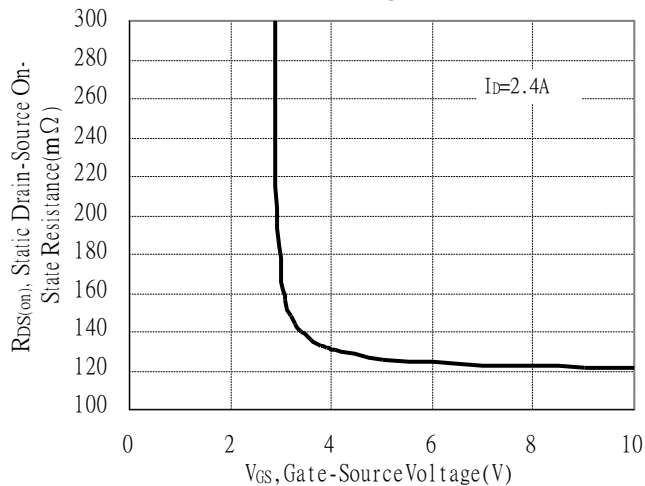
Static Drain-Source On-State resistance vs Drain Current



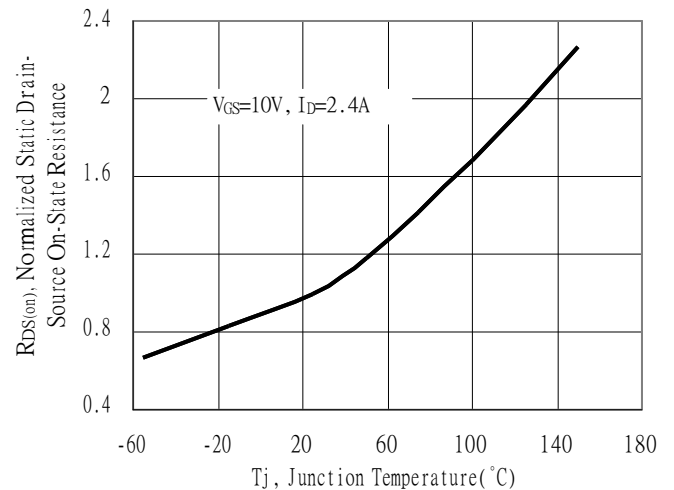
Reverse Drain Current vs Source-Drain Voltage



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

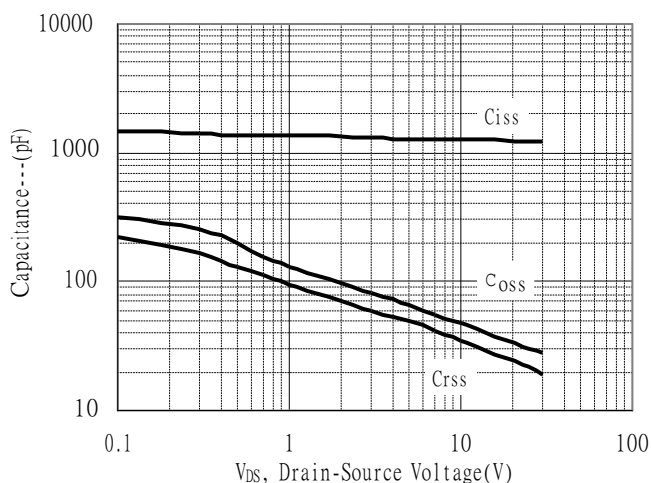


Drain-Source On-State Resistance vs Junction Temperature

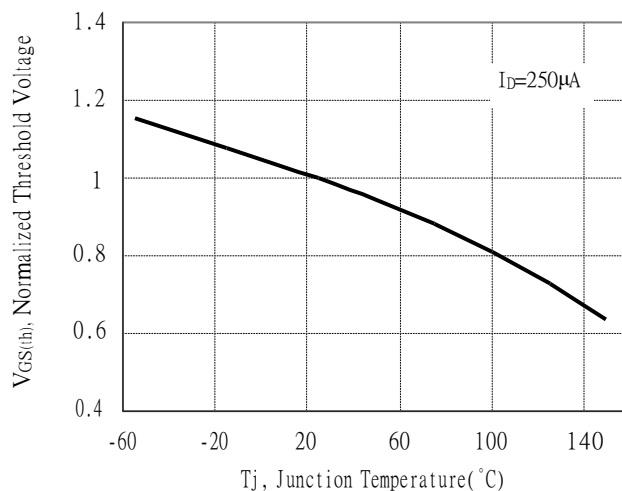


Typical Characteristics(Cont.) : Q1(N-channel)

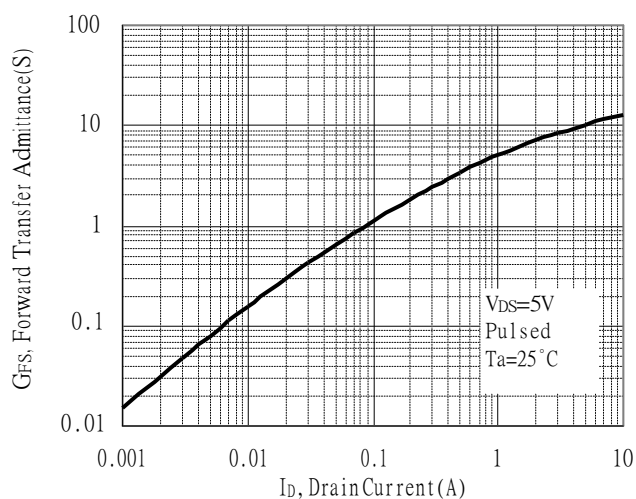
Capacitance vs Drain-to-Source Voltage



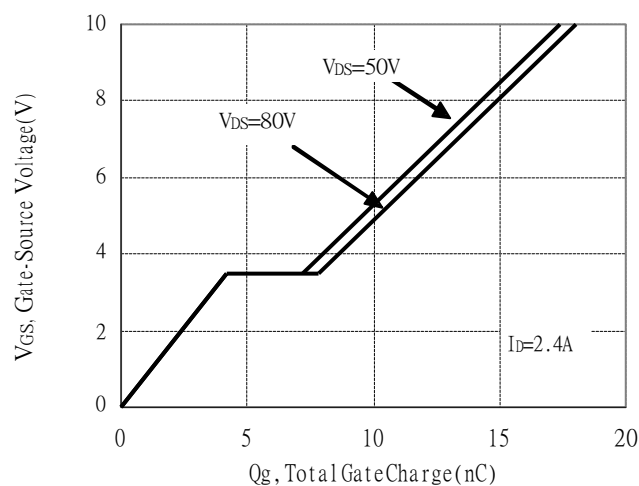
Threshold Voltage vs Junction Temperature



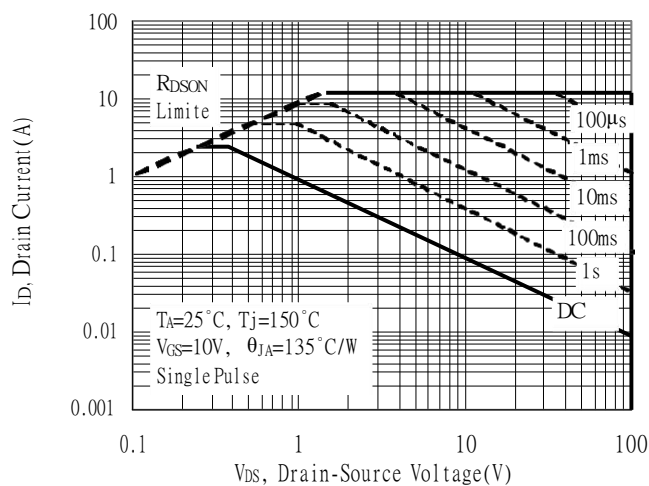
Forward Transfer Admittance vs Drain Current



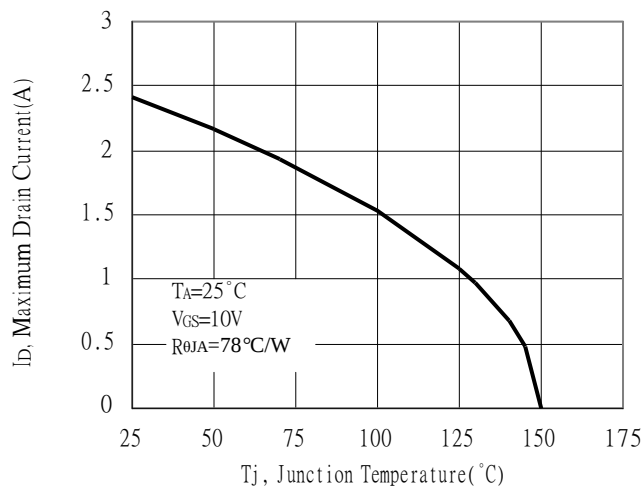
Gate Charge Characteristics



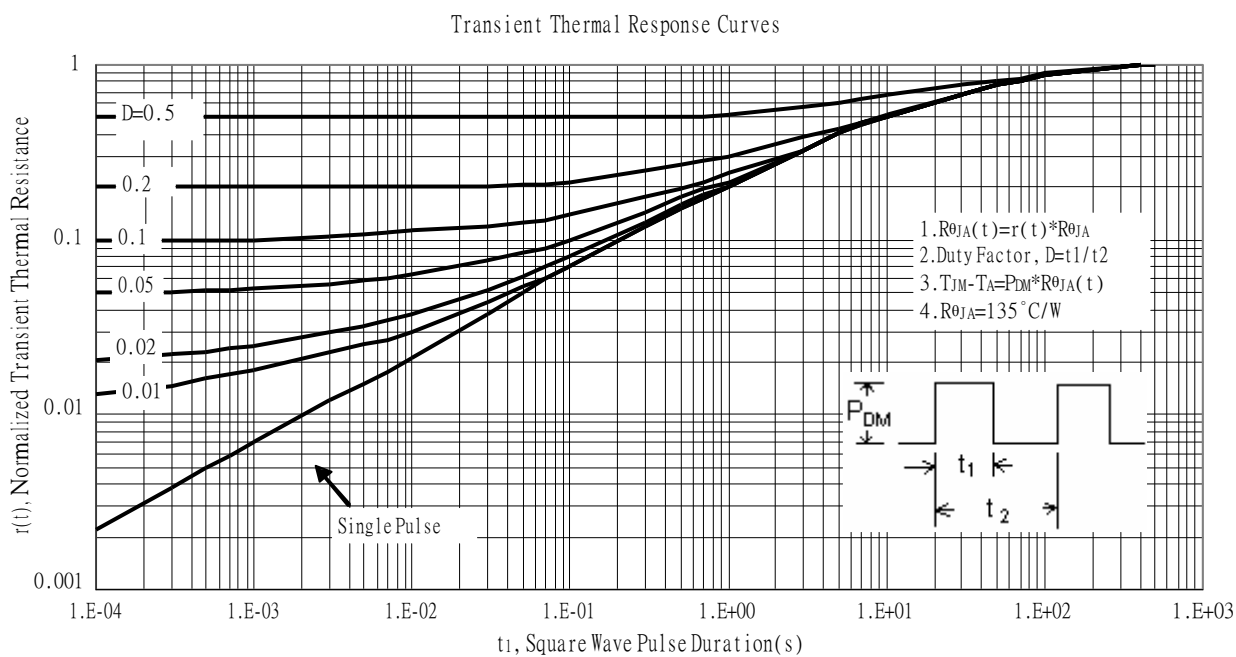
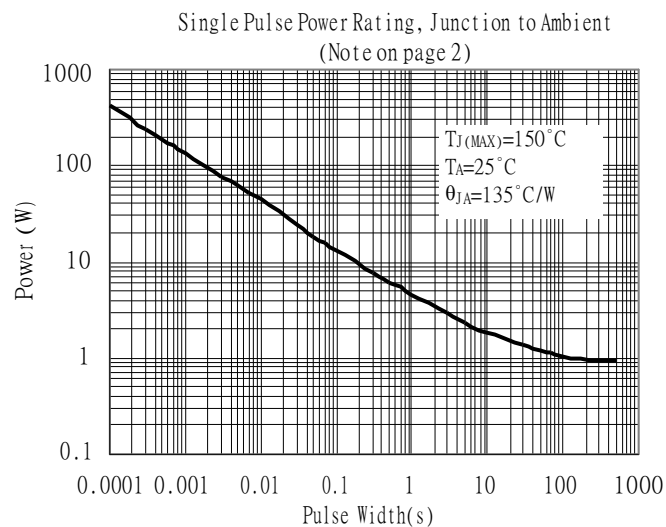
Maximum Safe Operating Area



Maximum Drain Current vs Case Temperature

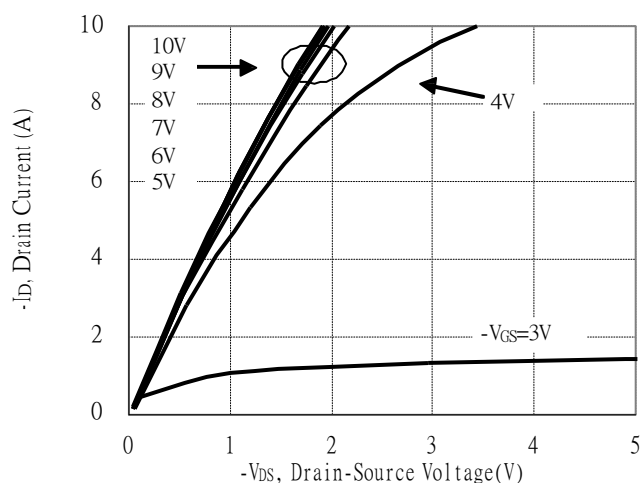


Typical Characteristics(Cont.) : Q1(N-channel)

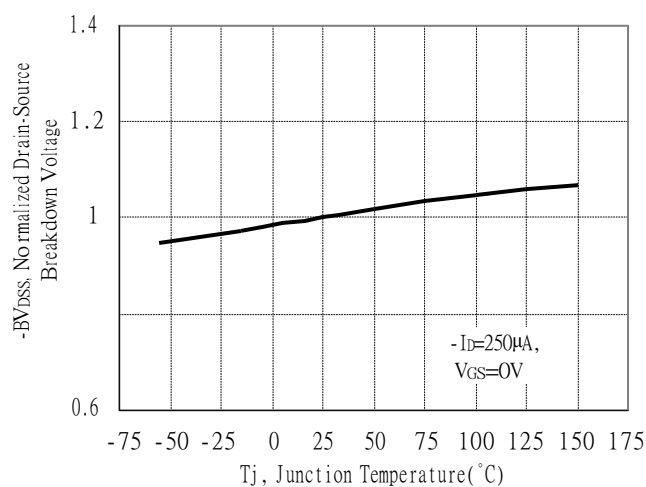


Typical Characteristics : Q2(P-channel)

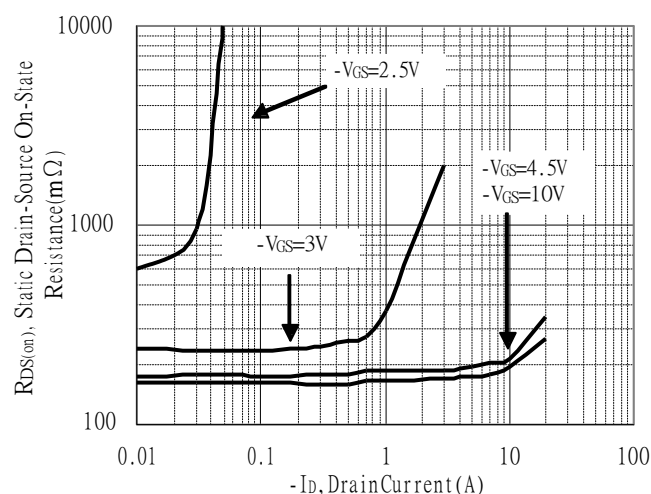
Typical Output Characteristics



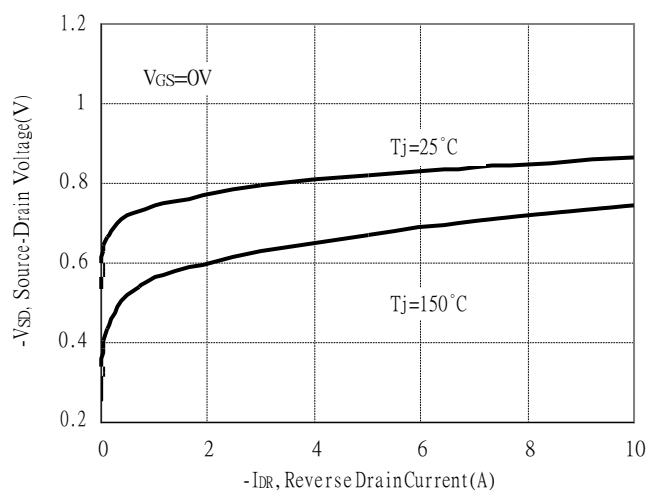
Breakdown Voltage vs Ambient Temperature



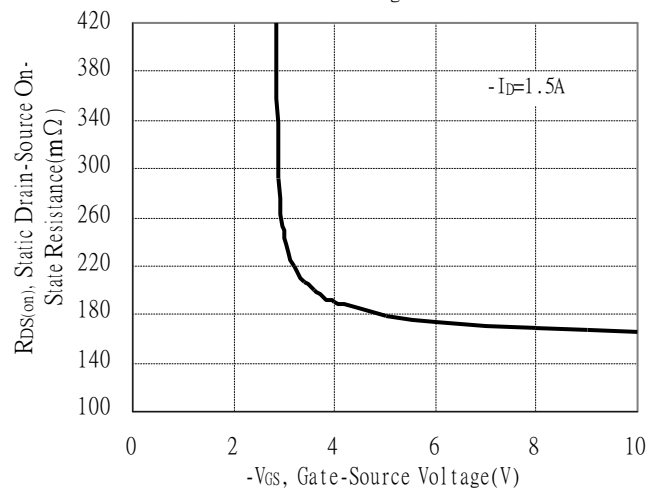
Static Drain-Source On-State resistance vs Drain Current



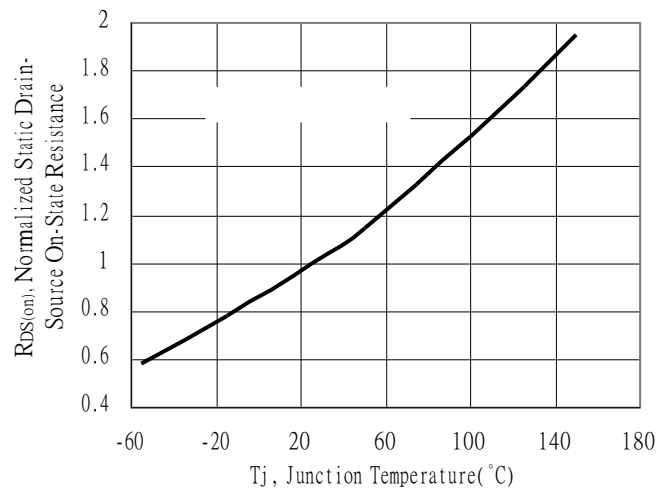
Reverse Drain Current vs Source-Drain Voltage



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

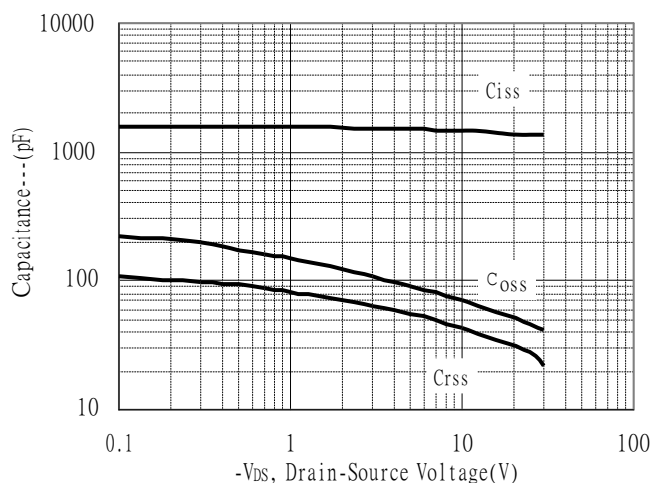


Drain-Source On-State Resistance vs Junction Temperature

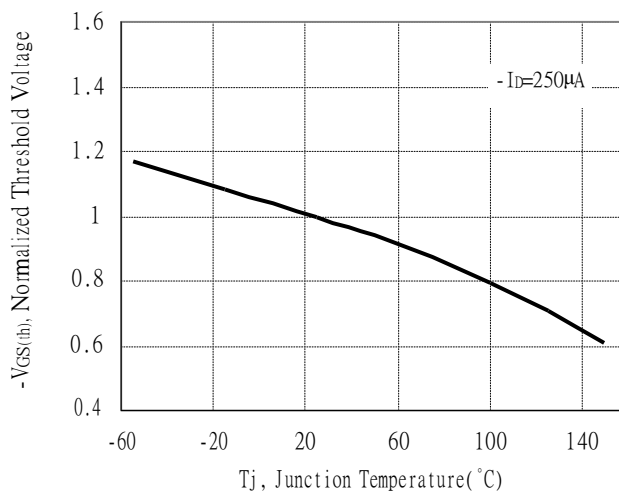


Typical Characteristics(Cont.) : Q2(P-channel)

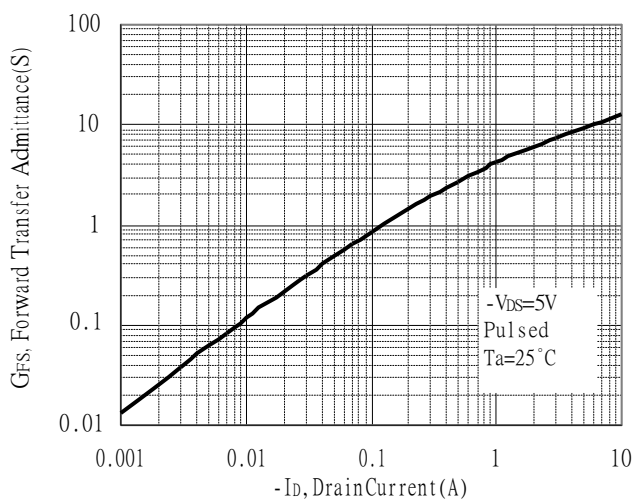
Capacitance vs Drain-to-Source Voltage



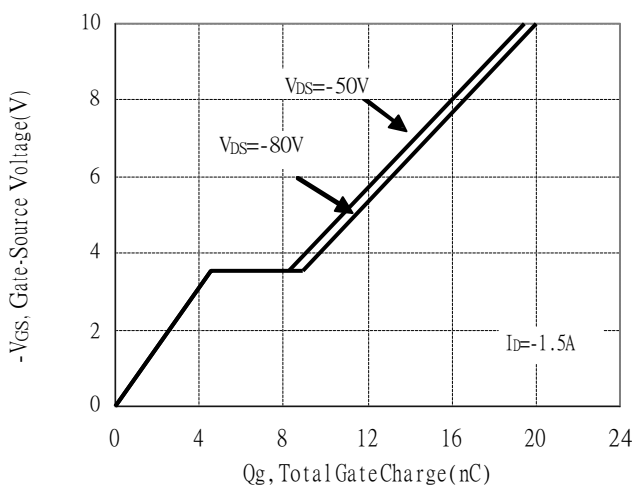
Threshold Voltage vs Junction Temperature



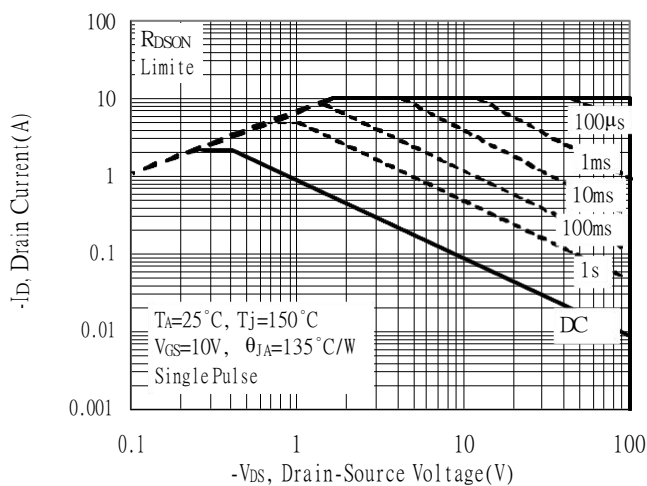
Forward Transfer Admittance vs Drain Current



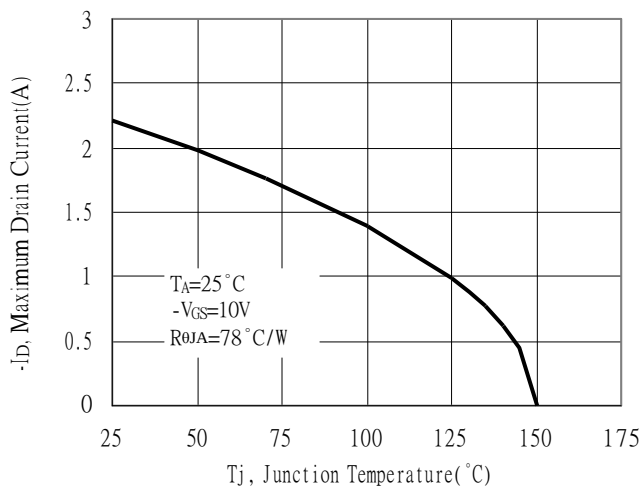
Gate Charge Characteristics



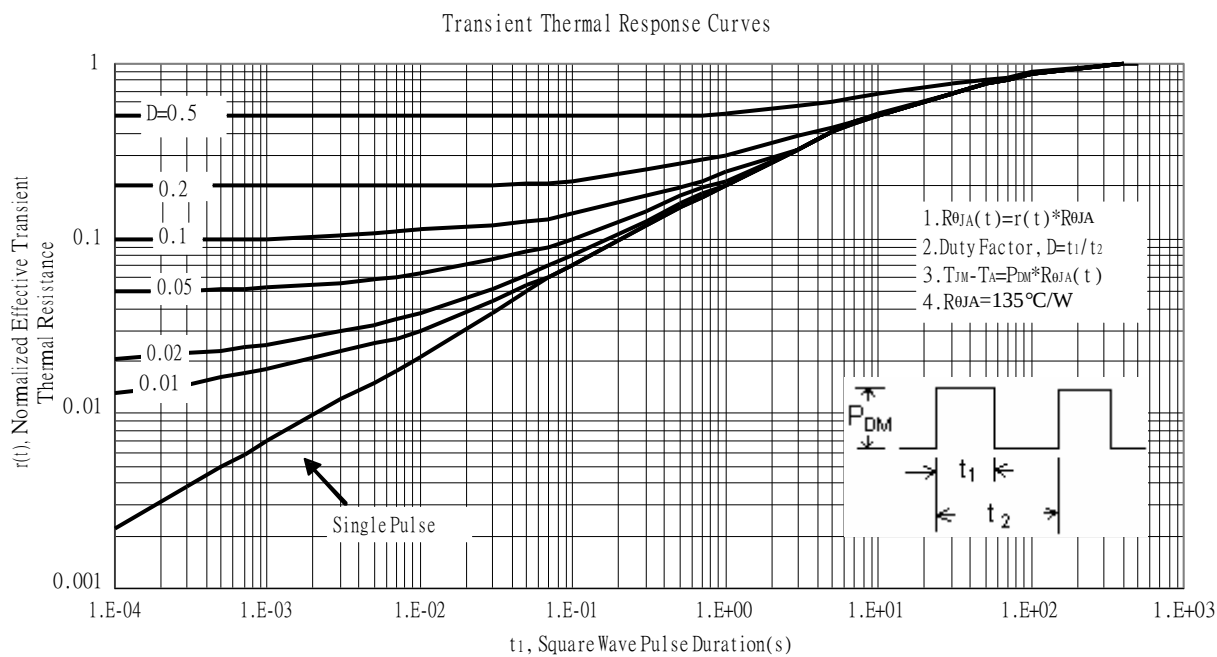
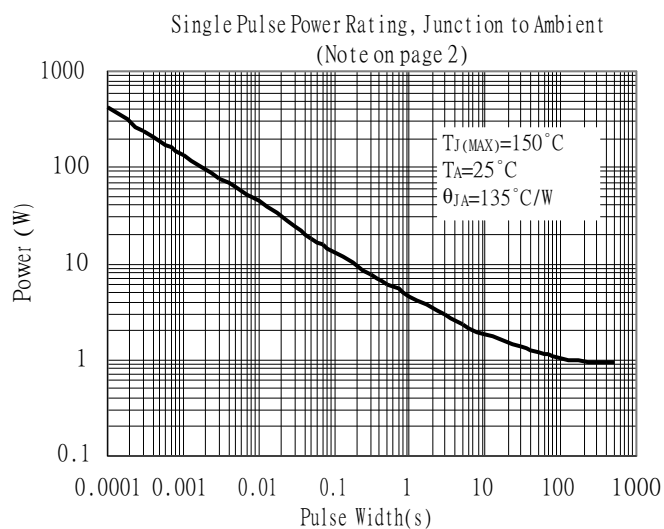
Maximum Safe Operating Area



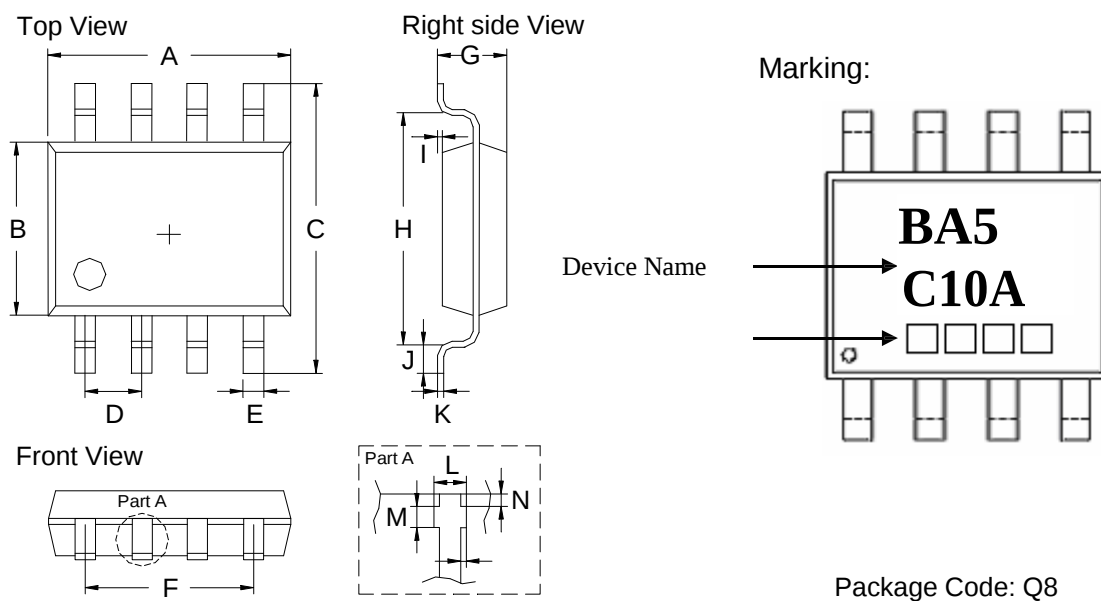
Maximum Drain Current vs Case Temperature



Typical Characteristics(Cont.) : Q2(P-channel)



SOP-8 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1909	0.2007	4.85	5.10	I	0.0019	0.0078	0.05	0.20
B	0.1515	0.1555	3.85	3.95	J	0.0118	0.0275	0.30	0.70
C	0.2283	0.2441	5.80	6.20	K	0.0074	0.0098	0.19	0.25
D	0.0480	0.0519	1.22	1.32	L	0.0145	0.0204	0.37	0.52
E	0.0145	0.0185	0.37	0.47	M	0.0118	0.0197	0.30	0.50
F	0.1472	0.1527	3.74	3.88	N	0.0031	0.0051	0.08	0.13
G	0.0570	0.0649	1.45	1.65	O	0.0000	0.0059	0.00	0.15
H	0.1889	0.2007	4.80	5.10					