Dual P-Channel Logic Level Enhancement Mode Power MOSFET

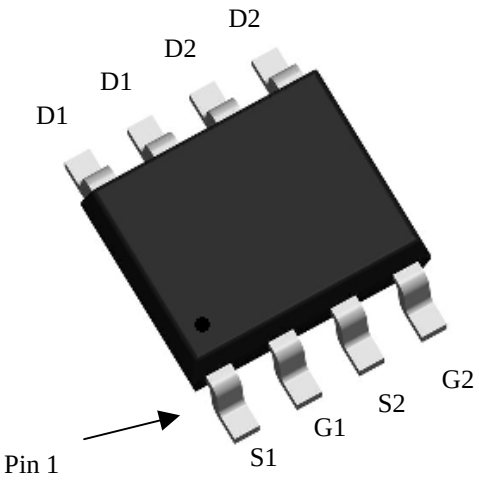
Features:

- $R_{DS(ON)}$=24mΩ(max.)@V_{GS}=-10V, I_D=-8A
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Dual P-ch MOSFET package
- Pb-free lead plating & Halogen-free package

BV_{DSS}	-30V
I_D @V_{GS}=-10V, T_C=25 °C	-8A
$R_{DSON(MAX)}$@V_{GS}=-10V, I_D=-8A	18mΩ (typ.)
$R_{DSON(MAX)}$@V_{GS}=-4.5V, I_D=-6A	27mΩ (typ.)

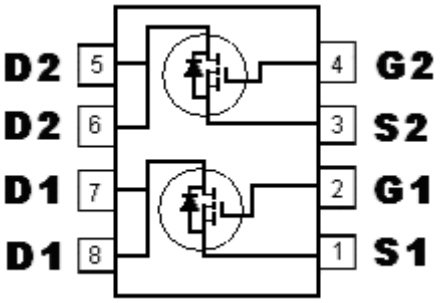
Outline

SOP-8



Equivalent Circuit

KWB24B03Q8



G：Gate D：Drain S：Source

Ordering Information

Device	Package	Shipping
KWB24B03Q8	SOP-8 (Pb-free lead plating and halogen-free package)	2500 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}	±25	
Continuous Drain Current, V_{GS}=-10V, T_C=25 °C		I_D	-8	A
Continuous Drain Current, V_{GS}=-10V, T_C=100 °C			-6	
Pulsed Drain Current (Note 1)		I_{DM}	-32	
Avalanche Current		I_{AS}	-12	
Avalanche Energy @ L=1mH, I_D=-8A, R_G=25Ω		E_{AS}	32	mJ
Repetitive Avalanche Energy @ L=0.05mH *2		E_{AR}	8	
Power Dissipation	T_A=25°C (Note 3)	P_D	2.4	W
	T_A=100°C		1.3	
Operating Junction and Storage Temperature Range		Tj ; Tstg	-55~+175	°C

100% UIS testing in condition of V_D=-15V, L=0.1mH, V_G=-10V, I_L=-8A, Rated V_{DS}=-30V P-CH

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	25	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	62.5 *3	

Note : 1. Pulse width limited by maximum junction temperature
2. Duty cycle≤1%
3. Surface mounted on 1 in²copper pad of FR-4 board, 125°C/W when mounted on minimum copper pad

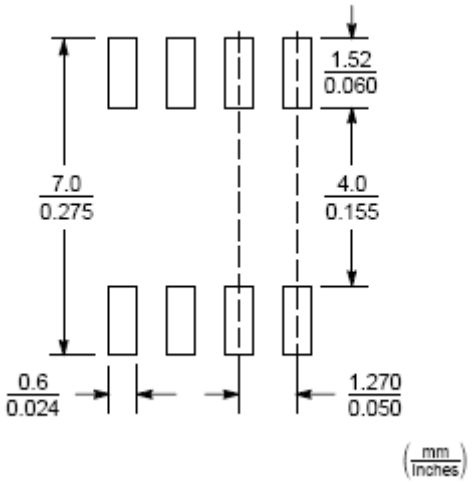
Characteristics (Tj=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	-30	-	-	V	V_{GS}=0V, ID=-250μA
$V_{GS(th)}$	-1	-1.5	-2.5		V_{DS} = V_{GS}, I_D=-250μA
I_{GSS}	-	-	±100	nA	V_{GS}=±25V
I_{DSS}	-	-	-1	μA	V_{DS} =-24V, V_{GS} =0V
	-	-	-10		V_{DS} =-20V, V_{GS} =0V, Tj=125°C
$I_{D(ON)}$ *1	-8	-	-	A	V_{DS} =-5V, V_{GS} =-10V
*$R_{DS(ON)}$ *1	-	18	24	mΩ	V_{GS} =-10V, I_D=-8A
	-	27	30		V_{GS} =-4.5V, I_D=-6A
G_{FS} *1	-	13	-	S	V_{DS} =-5V, I_D=-8A
Dynamic					
Qg(V_{GS}=-10V) *1, 2	-	24	-	nC	I_D=-8A, V_{DS}=-15V, V_{GS}=-10V
Qg(V_{GS}=-5V) *1, 2	-	16.1	-		
Qgs *1, 2	-	6.8	-		
Qgd *1, 2	-	8	-		

$t_{d(ON)}$ *1, 2	-	9.3	-	ns	V_{DS}=-15V, I_D=-1A, V_{GS}=-10V, R_G=2.7Ω
t_r *1, 2	-	6.1	-		
$t_{d(OFF)}$ *1, 2	-	27	-		
t_f *1, 2	-	8	-		
Ciss	-	2006	-	pF	V_{GS}=0V, V_{DS}=-15V, f=1MHz
Coss	-	200	-		
Crss	-	153	-		
Rg	-	4	-	Ω	V_{GS}=15mV, V_{DS}=0V, f=1MHz
Source-Drain Diode					
I_S *1	-	-	-2.3	A	
I_{SM} *3	-	-	-9.2		
V_{SD} *1	-	-	-1.2	V	I_F= I_S, V_{GS}=0V
trr *1	-	32	-	ns	I_F= I_S, dI_F/dt=100A/μs
Qrr *1	-	26	-	nC	

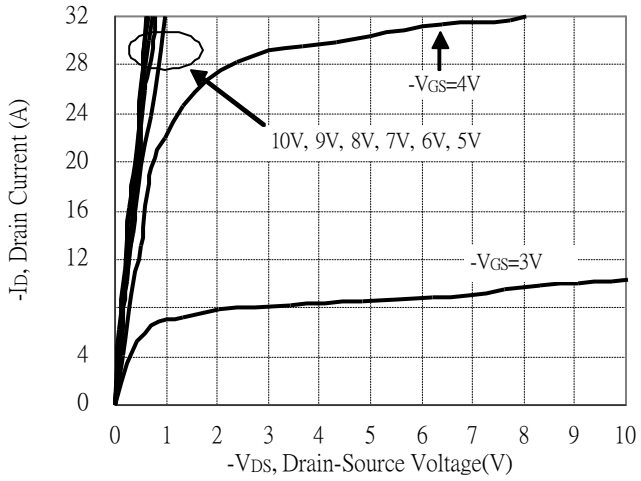
Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%
*2.Independent of operating temperature
*3.Pulse width limited by maximum junction temperature.

Recommended Soldering Footprint

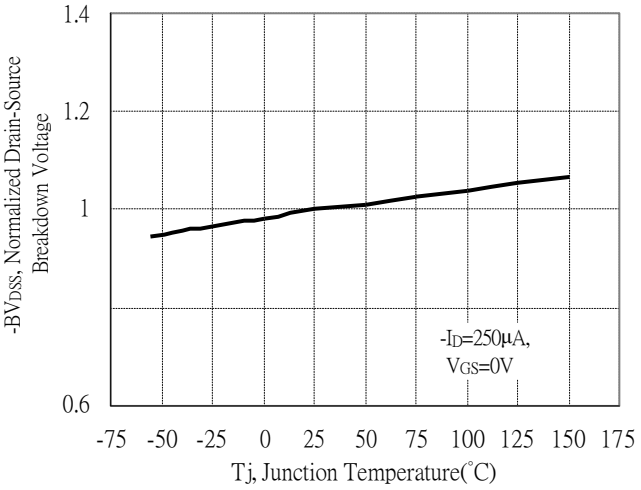


Typical Characteristics

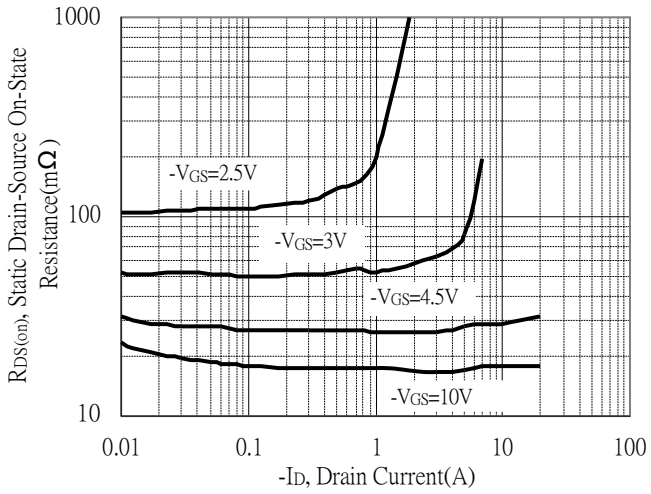
Typical Output Characteristics



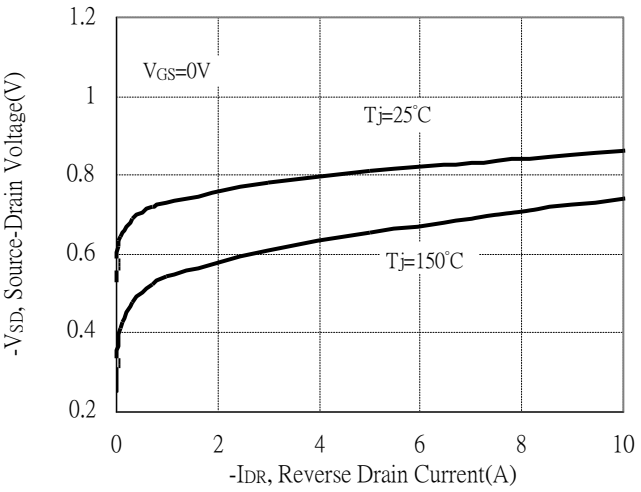
Brekdown Voltage vs Ambient Temperature



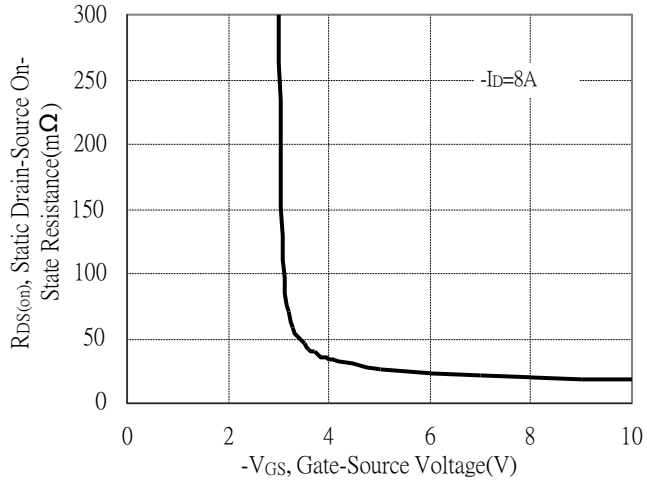
Static Drain-Source On-State resistance vs Drain Current



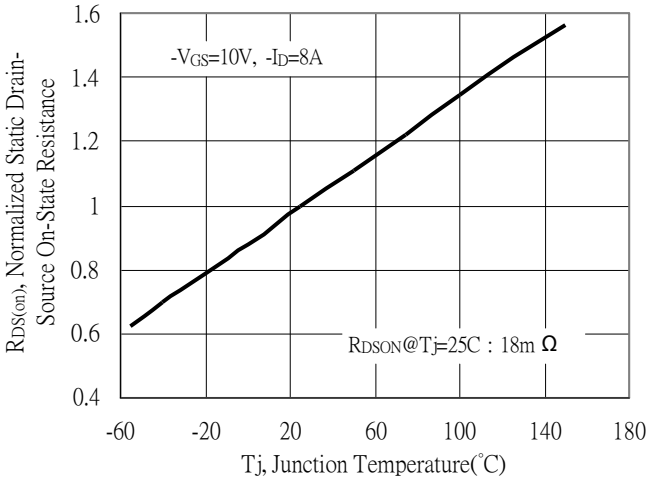
Reverse Drain Current vs Source-Drain Voltage



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

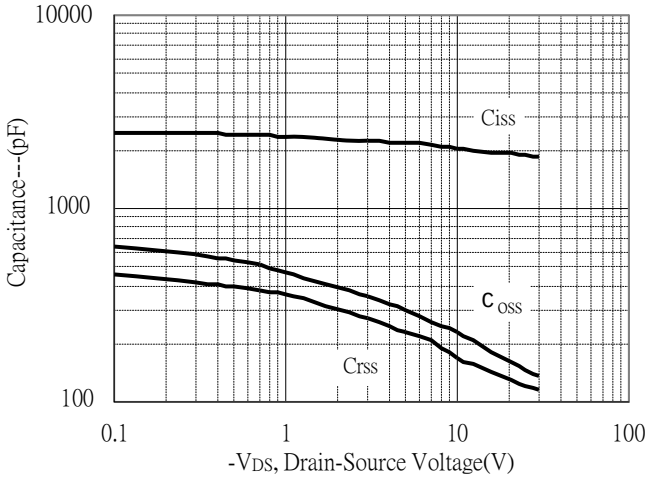


Drain-Source On-State Resistance vs Junction Tempearture

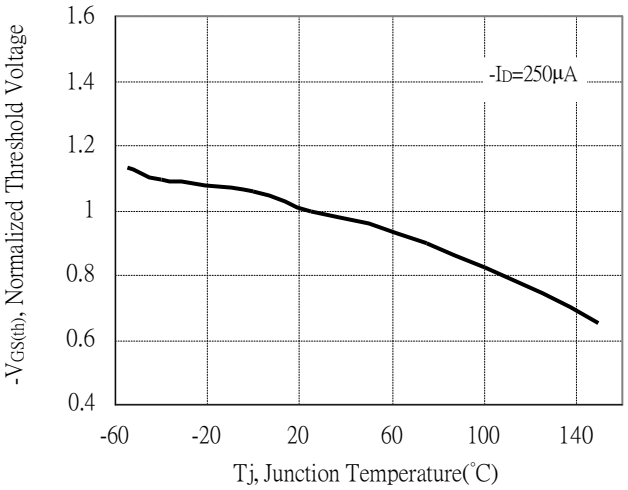


Typical Characteristics(Cont.)

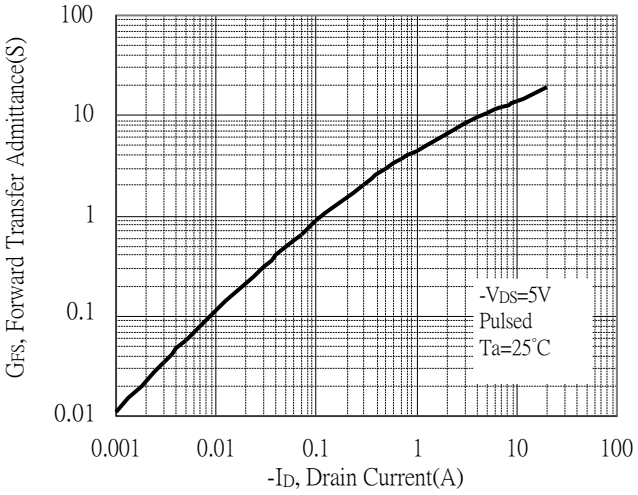
Capacitance vs Drain-to-Source Voltage



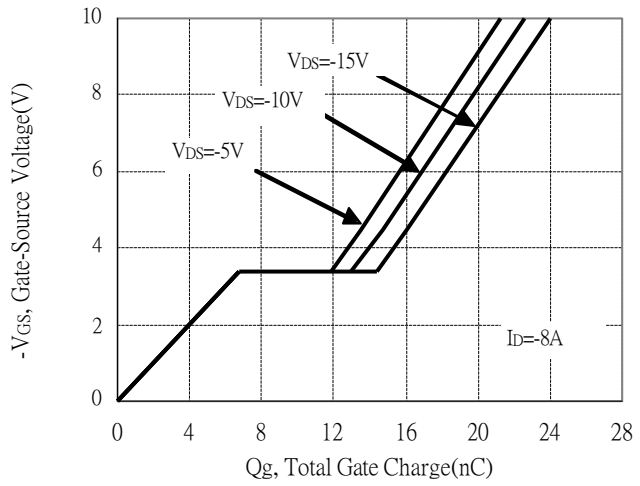
Threshold Voltage vs Junction Tempearture



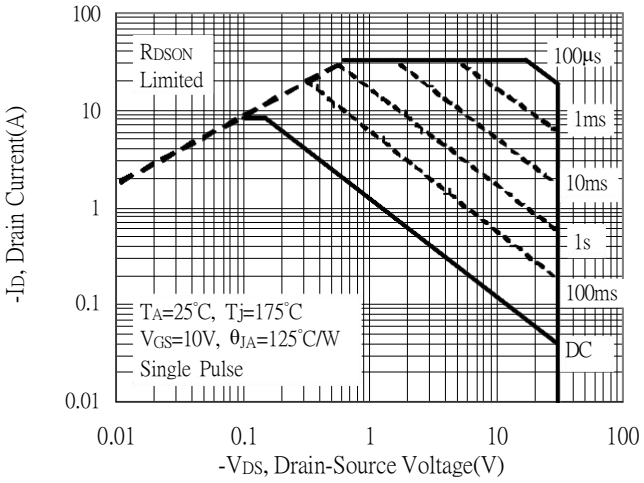
Forward Transfer Admittance vs Drain Current



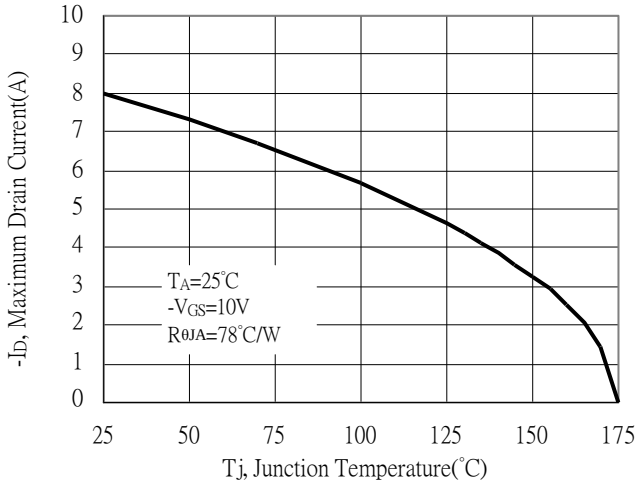
Gate Charge Characteristics



Maximum Safe Operating Area

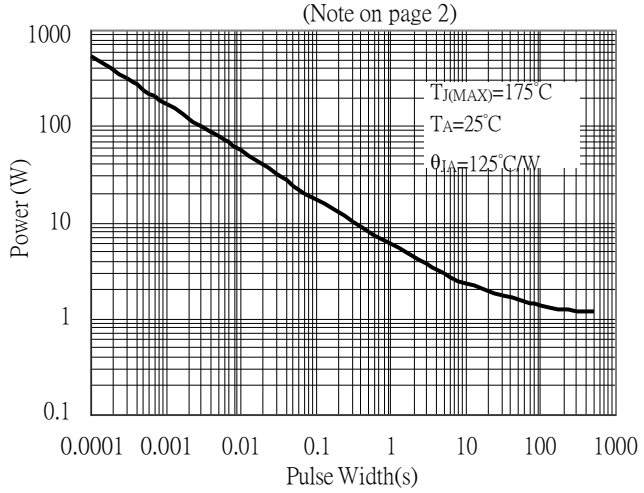


Maximum Drain Current vs Junction Temperature

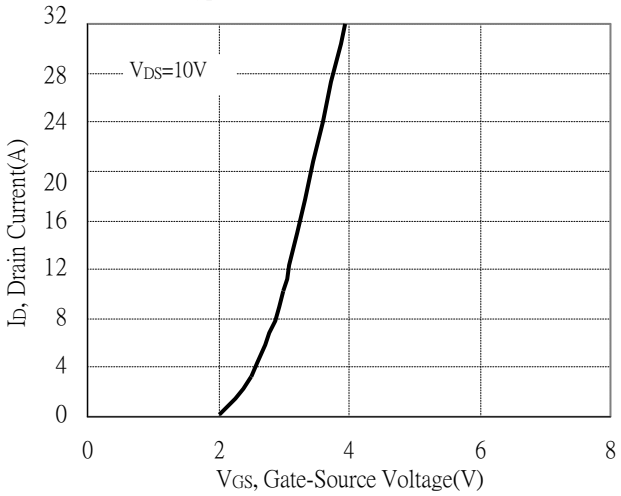


Typical Characteristics(Cont.)

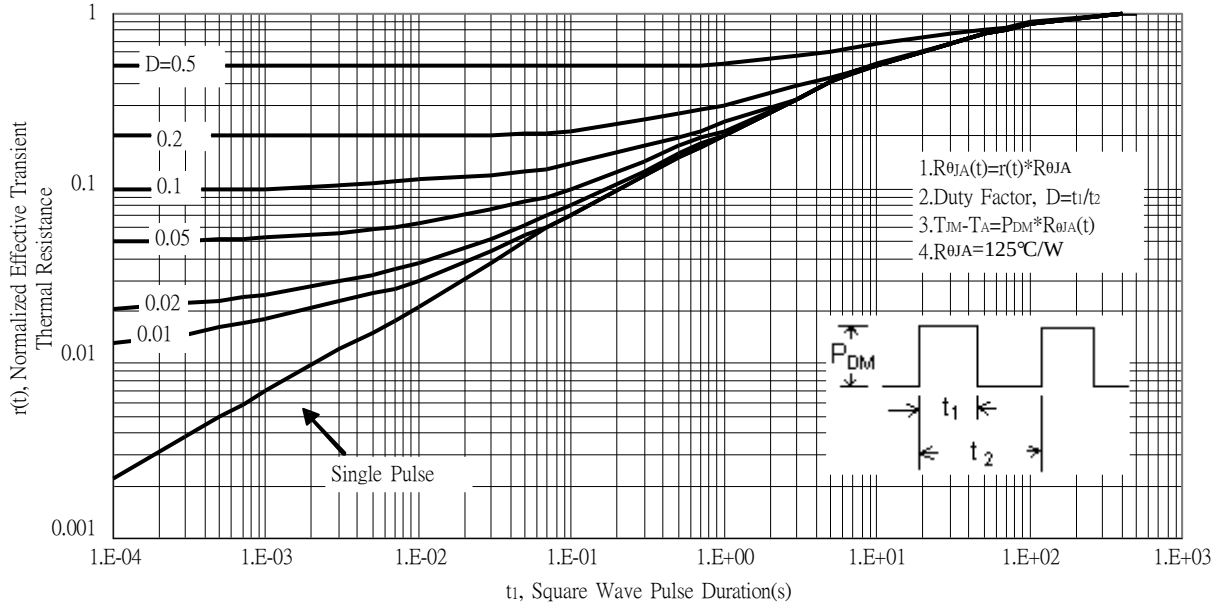
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)



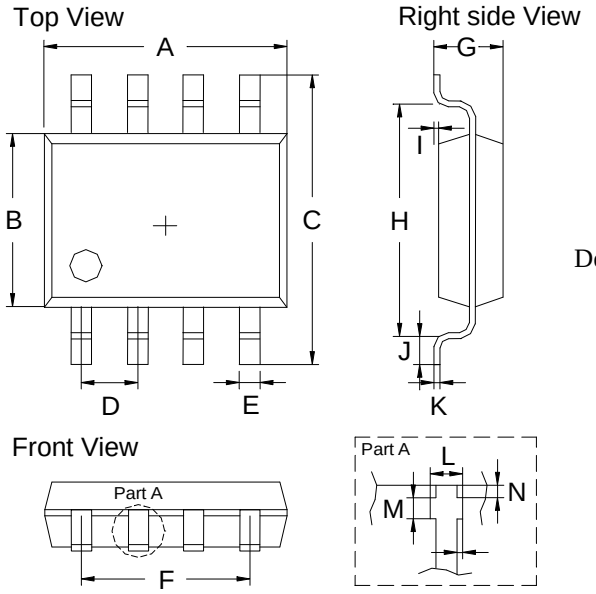
Typical Transfer Characteristics



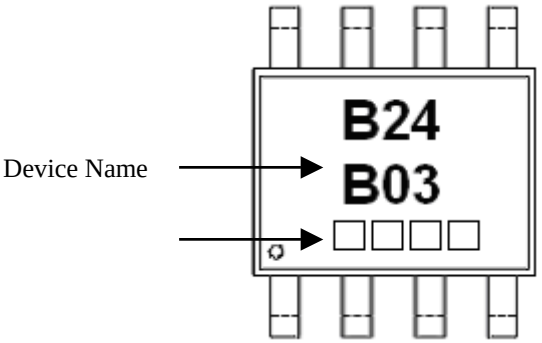
Transient Thermal Response Curves



SOP-8 Dimension



Marking:



Package Code: Q8

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1850	0.2007	4.70	5.10	I	0.0031	0.0110	0.08	0.28
B	0.1457	0.1614	3.70	4.10	J	0.0157	0.0323	0.40	0.83
C	0.2283	0.2441	5.80	6.20	K	0.0074	0.0102	0.19	0.26
D	0.0500*		1.27*		L	0.0145	0.0204	0.37	0.52
E	0.0130	0.0201	0.33	0.51	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	0.0472	0.0638	1.20	1.62	O	0.0000	0.0059	0.00	0.15
H	0.1889	0.2007	4.80	5.10					