

P-Channel Enhancement Mode Field Effect Transistor in a SOP-8 Plastic Package.

$V_{DS} (V) = -40V$

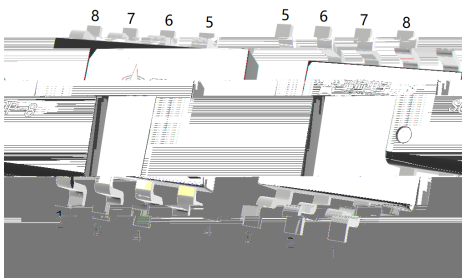
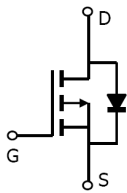
$I_D = -10 A (V_{GS} = -20V)$

$R_{DS(ON)} < 15m \Omega (V_{GS} = -10V)$

Qualified to AEC-Q101 Standards for High Reliability,

HF Product.

Power Management in Notebook computer, Portable Equipment and Battery powered systems, Meet the stringent requirements of automotive applications.



PIN 1	S	PIN 2	S	PIN 3	S	PIN 4	G
PIN 5	D	PIN 6	D	PIN 7	D	PIN 8	D

See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-40	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	$I_D (T_a=25^{\circ}\text{C})$	-10	A
Continuous Drain Current	$I_D (T_a=70^{\circ}\text{C})$	-8	A
Power Dissipation for Single Operation	$P_D (T_a=25^{\circ}\text{C})$	1.7	W
Power Dissipation for Single Operation	$P_D (T_a=70^{\circ}\text{C})$	1.1	W
Maximum Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 ~ 150	
Thermal Resistance-Junction to Ambient	$R_{JA} \quad t \leq 10s$	40	/W
Thermal Resistance-Junction to Ambient	R_{JA}	75	/W
Maximum Junction-to-Lead	R_{JL}	24	/W

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = -250\text{ A}$ $V_{GS} = 0V$	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -40V$ $V_{GS} = 0V$			-1.0	A
		$V_{DS} = -40V$ $V_{GS} = 0V$ $T_J = 55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS} = 0V$ $V_{GS} = \pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ $I_D = -250\text{ A}$	-1.2	-1.6	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V$ $I_D = -10A$		13.1	15	m Ω
		$V_{GS} = -4.5V$ $I_D = -7A$		18	21	
Forward Transconductance	g_{FS}	$V_{DS} = -5V$ $I_D = -10A$		9.5		S
Diode Forward Voltage	V_{SD}	$I_S = -1A$ $V_{GS} = 0V$		-0.8	-1.0	V
Total Gate Charge	$Q_g(10V)$	$V_{GS} = -10V$ $V_{DS} = -20V$ $I_D = -10A$		42	55	nC
Total Gate Charge	$Q_g(4.5V)$			18.6		
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			8.6		
Gate Resistance	R_g	$V_{GS} = 0V$ $V_{DS} = 0V$ $f = 1MHz$		8.5		
Input Capacitance	C_{iss}	$V_{GS} = 0V$ $V_{DS} = -25V$ $f = 1MHz$		3300		pF
Output Capacitance	C_{oss}			135		
Reverse Transfer Capacitance	C_{rss}			177		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = -10V$ $V_{DS} = -20V$ $R_L = 2$ $R_{GEN} = 3$		9.4		ns
Turn-on Rise Time	t_r			20		
Turn-off Delay Time	$t_{d(off)}$			55		
Turn-off Fall Time	t_f			30		

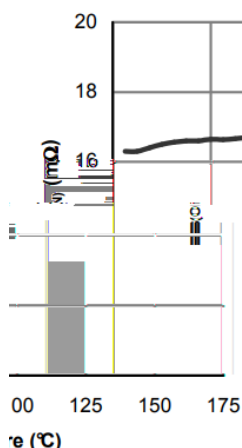
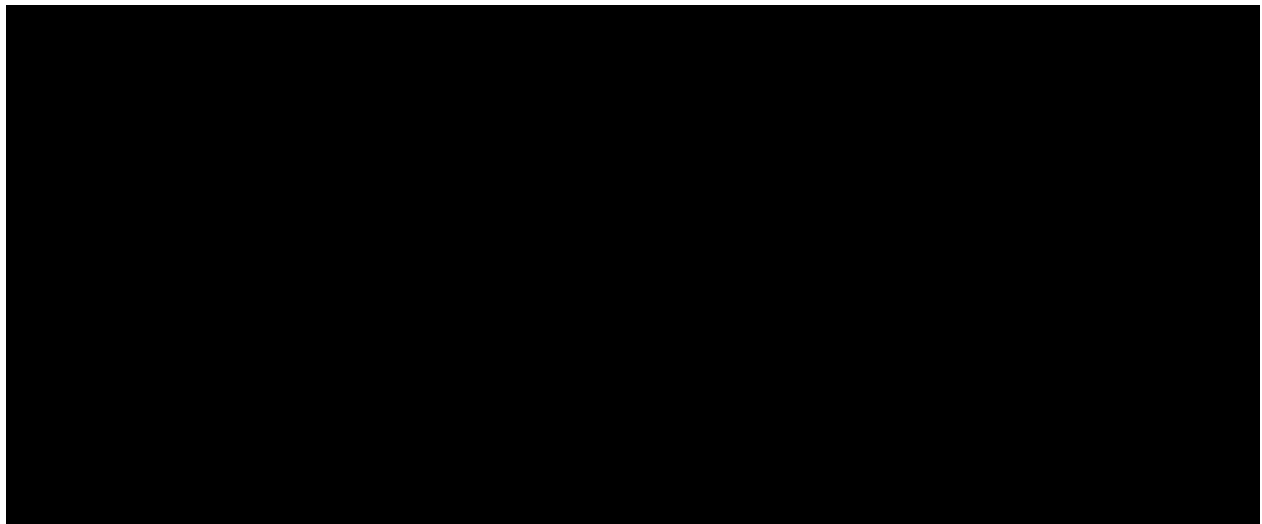


Figure 3: On-Resistance vs. Junction Temperature

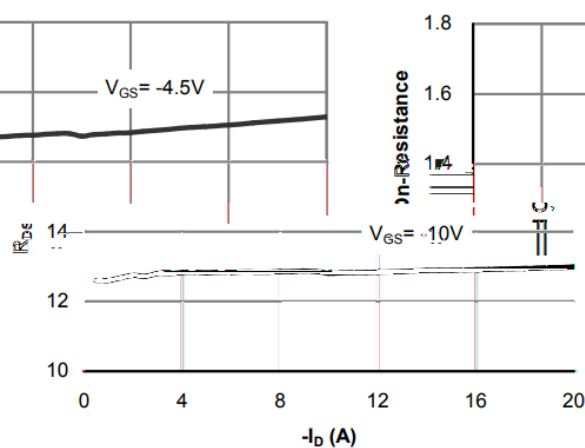


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

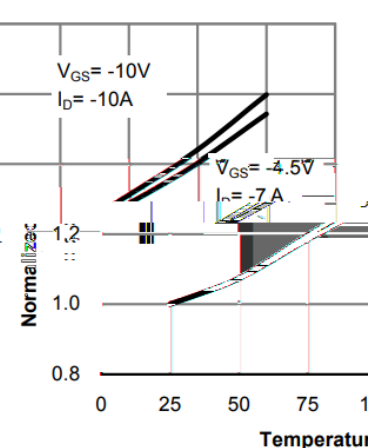


Figure 4: On-Resistance vs. Temperature

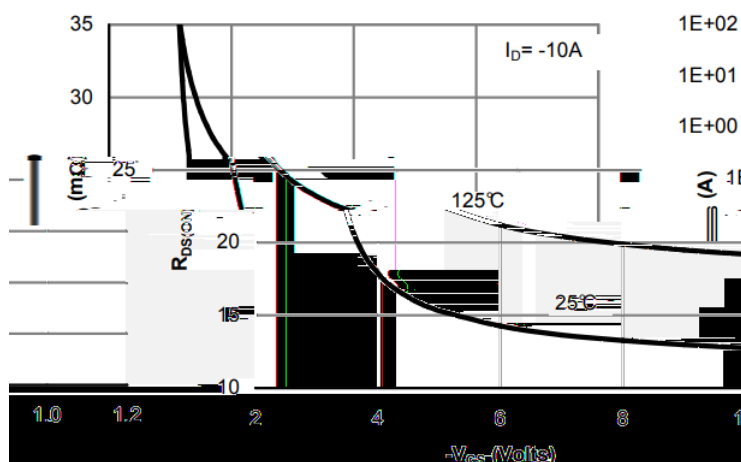


Figure 5: On-Resistance vs. Gate-Source Voltage

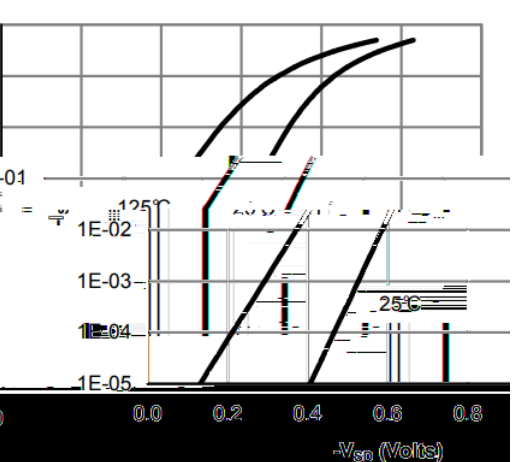
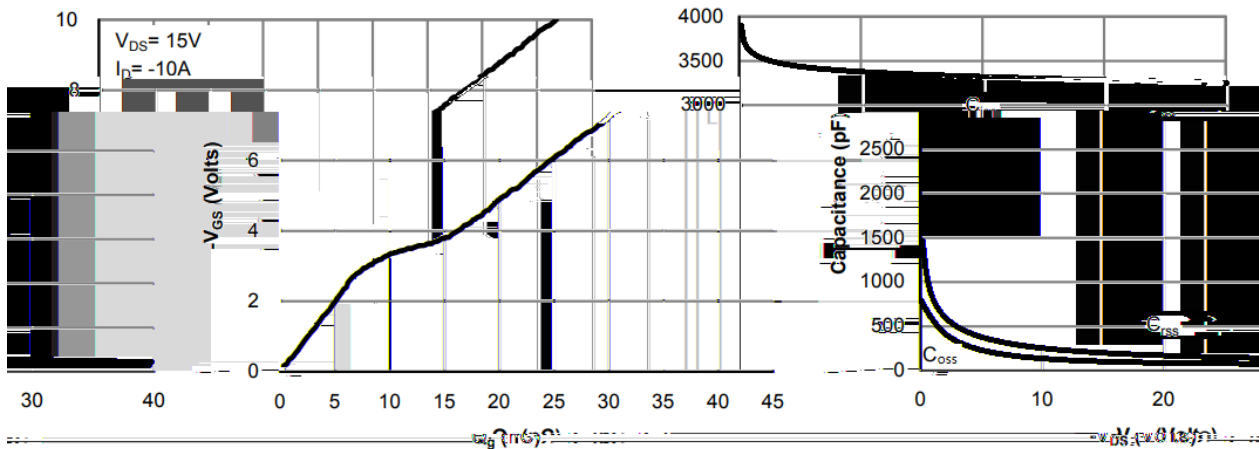


Figure 6: Body-Diode Characteristics

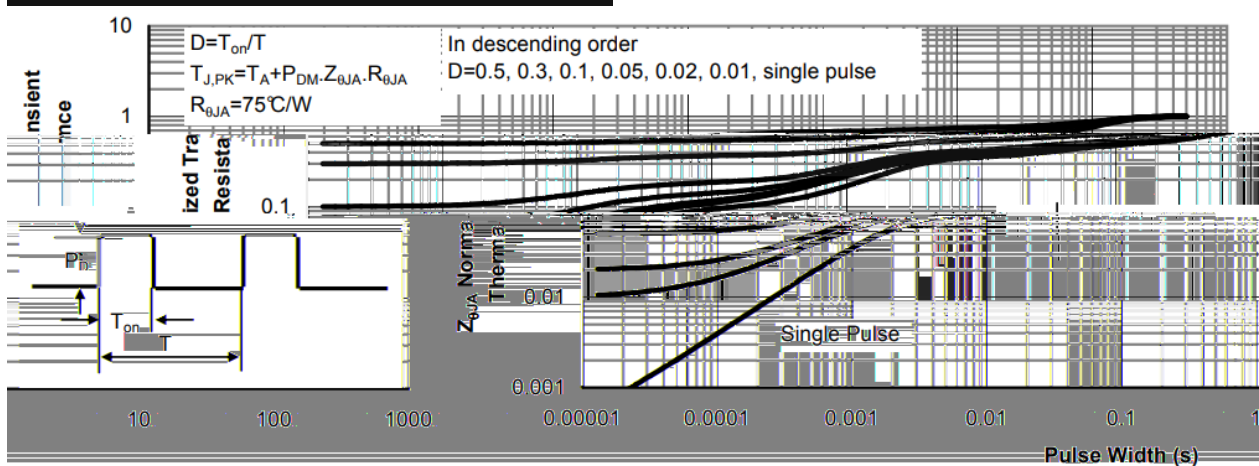
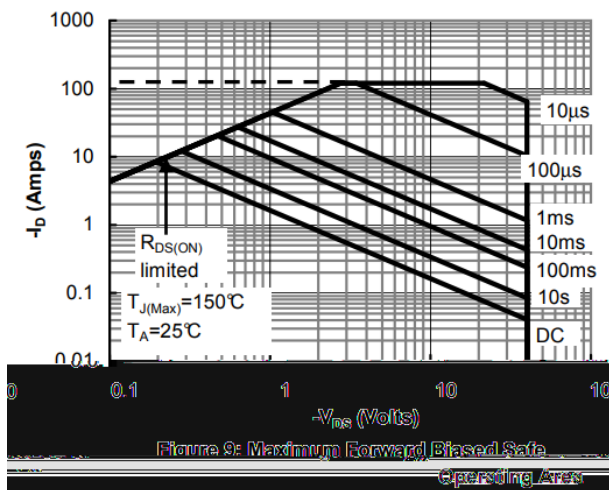
/



Characteristics

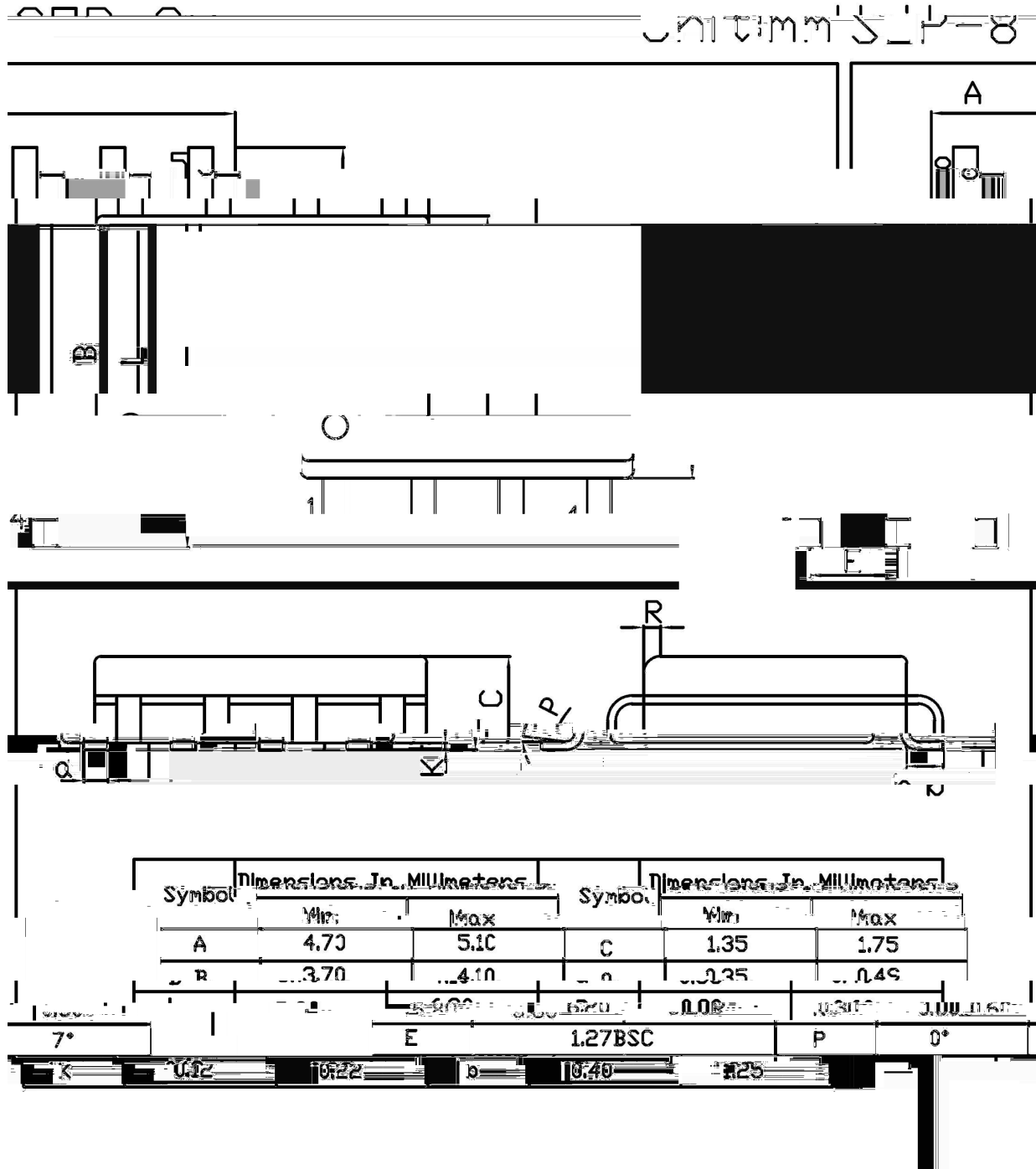
Figure 7: Gate-Charge Characteristics

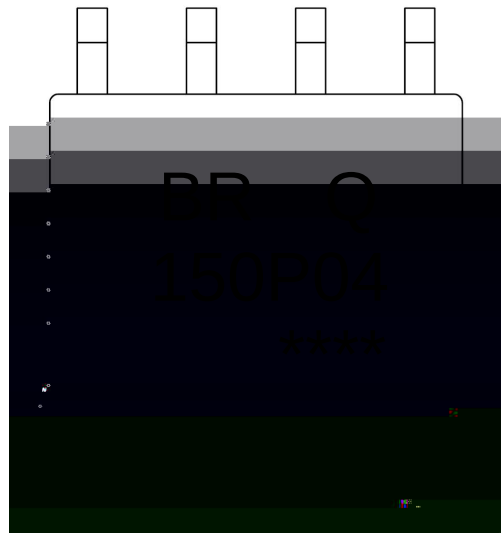
Figure 8: Capacitance Characteristics



Thermal Impedance

Figure 10: Normalized Maximum Transient Thermal Impedance





BR

Q

150P04

Note:

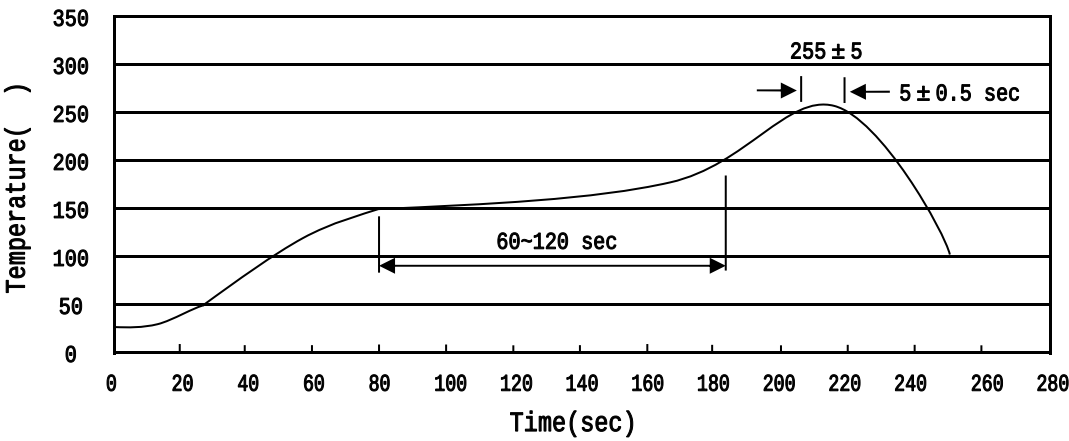
BR: Company Code

Q: Automobile halogen-free product Code

150P04: Product Type Code

****: Lot No. Code, code change with Lot No

Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255 5

5 0.5sec;

2.Peak Temp.:255 5 , Duration:5 0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

260 5

10 1 sec.

Temp.:260±5

Time:10±1 sec

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOP/ESOP-8	4,000	2	8,000	6	48,000	13 ×12	360×360×50	380×335×366